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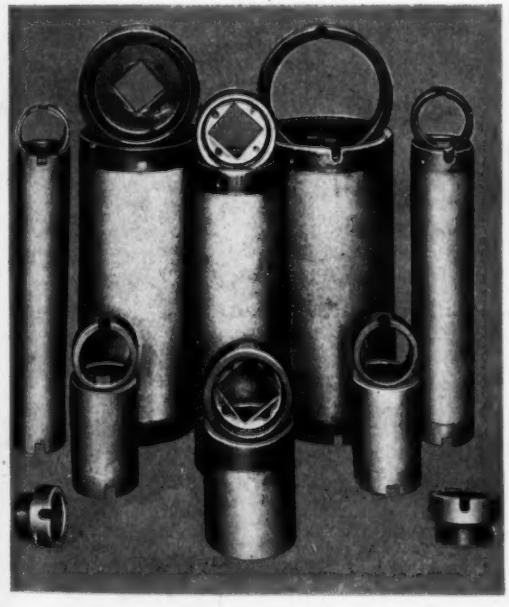

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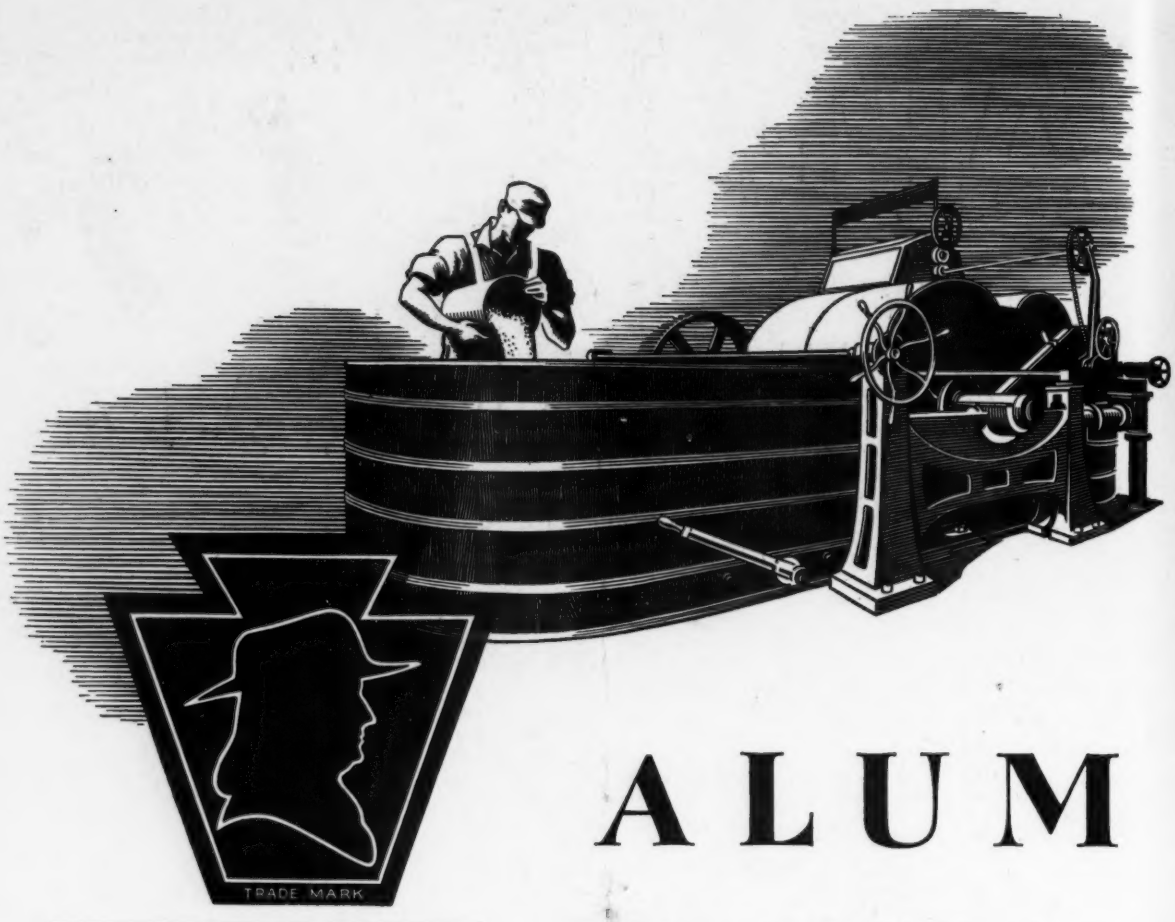

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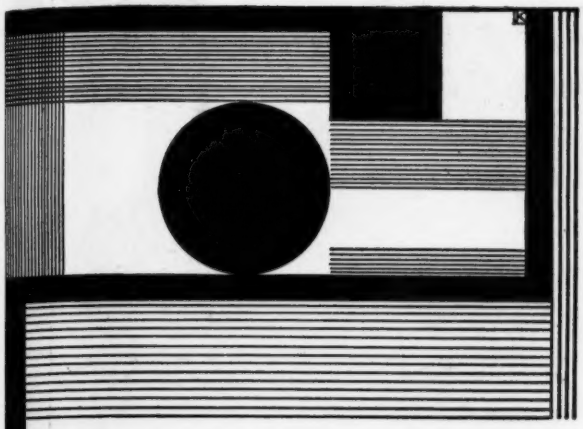

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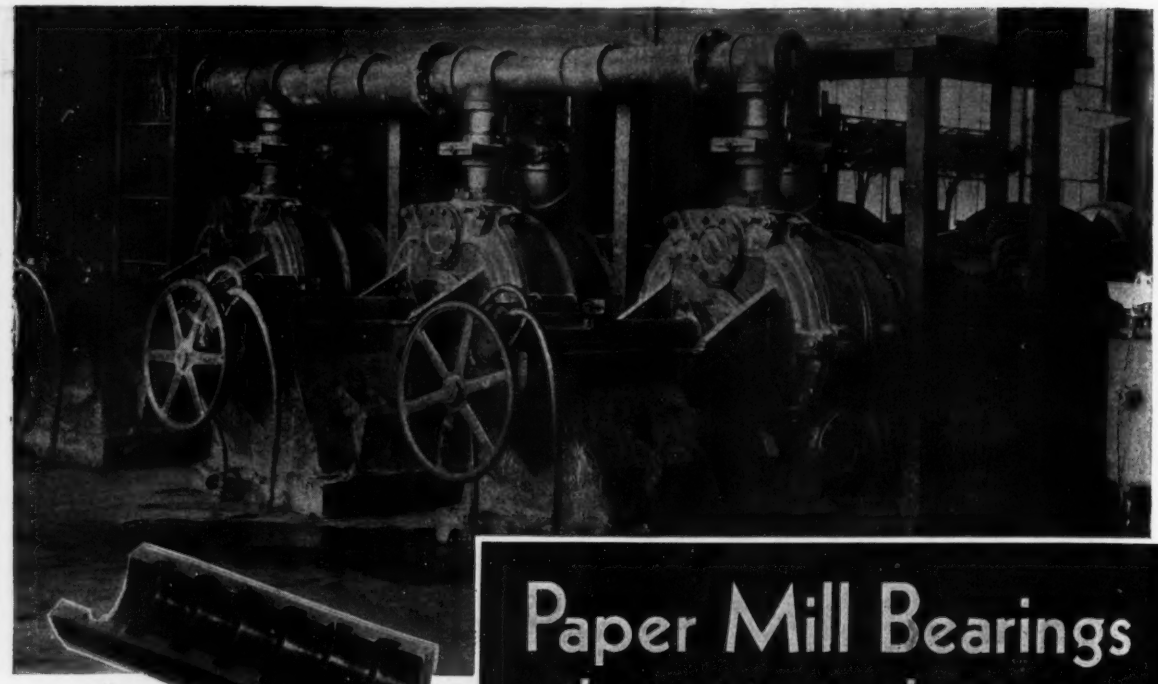

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PAPER

Vol. XCVII, No. 16 Thursday, October 19, 1933

Code of Paper Machine Builders Industry Heard

E. H. Neese, President of the Paper Machine Builders Association, Argues for 40 Hour Week Stating that the Paper Industry Is Woefully Under Equipped for Increase in Production, and Obsolescence Has Rendered Purchases of New Machinery Practically Imperative —It Will Be Impossible to Supply This Demand With Shorter Week

WASHINGTON, D. C., October 18, 1933—The paper machine builders industry has recorded a 50 per cent gain in employment since the passage of the NRA program according to E. H. Neese, of Beloit, Wis., president of the Paper Machine Builders Association, appearing before Deputy Administrator G. S. Brady on October 12 at the public hearing on the industry's code. He stated that on June 16 the industry employed 1,297 men while on September 20 there were 1,937 workers employed.

New Machinery Purchases Imperative

The witness brought out this fact in a defense of the code's proposed minimum wages of 40 cents an hour and maximum weekly work hours of 40, with exceptions. He said that it was a fact that "the paper industry is woefully under-equipped for any large increase in economical production and obsolescence has rendered new machinery purchases practically imperative, particularly in the paper board industry.

"It will not take any large increase in business to place the paper and paper board making machine industry in a position to employ as many men as in 1928 and 1929 on the basis of the hours in the submitted code, whereas, if these hours should be reduced, not only will our own industry be slowed down but the paper manufacturers will be correspondingly slowed down for they would necessarily have to wait for deliveries," Mr. Neese stated.

Mr. Neese also pointed out that the recent adoption by the paper and pulp industry of a code will "of course result in lesser hours per worker in that industry and it will, therefore, in order to supply the demand, require additional paper making machinery which can be supplied solely by our industry."

A Service Industry

Mr. Neese pointed out that the paper machine builders industry was not productive but was a service industry. It was devoted to making machines for manufacturers on order and it was impossible to stock up any particular type of machine, since it was possible for two manufacturers to design two different machines making the same class of paper.

The volume of business in 1928 amounted to $15,000,000, with 2,500 employees compared with a volume of $4,500,000 in 1932, with 1,350 employees, Mr. Neese stated. Capital invested in the industry in 1928 amounted to $16,000,000, compared with $17,000,000 for the following four years, while the value of production dropped from $15,000,000 in 1928 to $4,500,000 in 1932. It was explained that the total invested capital was not large, but it was unusually large in comparison to the actual sales figures.

Mr. Neese stated that a large capital outlay would be necessary, in proportion to expected sales, before other concerns could enter the field, and this together with the fact that success in the field is largely the result of experience and highly technical skill, makes it doubtful if the field could be increased quickly. "For this reason," he said, "as well as for others, it is submitted that if the needs of the paper mills are to be served adequately when the expected future improvement of business develops, builders of the essential paper and paper board making machines should not be unduly restricted as to hours of labor."

Deputy Brady congratulated Mr. Neese on the presentation of the facts and figures relating to his industry, stating that they would be helpful to the Administration. However, he asked him to carefully consider whether it would not be possible to lower the hours as presented in the proposed code. He suggested that the code committee and representatives of the Labor Advisory Board meet together today in an effort to reach this end.

He stated that he wanted to make one point clear in regard to such negotiations. "It will be remembered," he said, "that if there is an outside labor man present in the meeting, he is there at the tolerance of the industry. It may be, of course, that the Labor Advisor will wish to call in an expert to assist him, but after the latter has made his statement, industry representatives may request him to leave the scene of negotiations. The Labor Advisor is a representative of the Government, and the industry is dealing with the Government in these negotiations."

W. P. McGinn Asks 30-Hour Week

Following Mr. Neese's presentation, W. P. McGinn representing the International Association of Bridge, Structural and Ornamental Iron Workers, presented a

(Continued on page 24)

Paper Demand Fairly Active in Philadelphia

Although Fine Paper Market Continues Rather Spotty, Trading is More Active Than in Preceding Week—Quotations on Various Standard Grades Are Generally Steady—Some Improvement Noticed in Position of Coarse Wrapping Paper Division

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 16, 1933—Emphatic action,—looking towards the amelioration of abuses in the fine paper trade if they exist or the development of a better understanding if it be found that the complaints which are quite prevalent are determined to have resulted from a lack of understanding—was taken by the Fine Paper Division of the Philadelphia Paper Trade Association at an exceptionally well attended meeting held during the week. This action is generally regarded as not only the outstanding development of the week in the Philadelphia region but as of extreme importance in these times of uncertainty and of overnight changes.

Aside from that, but really in addition to it, was the trade experiences. In this same Fine Paper Division, business was carried on with a little more activity than during the preceding week, but at best was rather spotty in character, in that dull days and more than ordinarily busy ones alternated but apparently without regularity or particular reason. Prices have held steadily all along the line but with no additional increases. If there be a semblance of complaint on the part of the trade, it is over the difficulty of making prompt collections.

The capital of so many of the consumers of fine papers is so largely still tied up in banks and trust companies that their financial stress, with greater activity on their part involving a larger consumption of paper, is really more acute than it has been for some time past. Representatives of the fine paper houses, however, are all confident that these conditions are merely of a transient character and they see nothing in the immediate future to dim the enthusiasm which universally was felt some weeks ago.

In the Course Paper Division there is a rather contrasting condition of affairs. Most of the houses are of opinion that something approaching a lull, which was rather notable since October began, is now not only disappearing but is definitely over, and in the words of one of the best informed of this group "the chaotic conditions which then maintained are resolving themselves into a semblance of order." The potent factor in this improved condition is believed to be the trade unity which has been brought about through the influence of the NRA propaganda. While it is true that the trade Codes which had been submitted to the authorities in Washington have not yet received formal approval, it is likewise true that the Coarse Paper trade, which, until recent months, had been in a thoroughly disorganized condition, is now acting in a unity which has been found even without the strict interpretation of the proposed Codes, to be highly beneficial to the trade itself and as well to its customers.

Paper Stock Situation

In the paper stock branch of the business, which many regard as an index of the immediate future, the week's experiences were most varied. It is admitted that as conditions stood at this writing, Monday evening, there was a softening, almost a weakness not only in the mixed and commons but as well in the better grades of paper stock. Ruling prices, as this new week begins, were almost entirely inside and not the outside quotations, but the representative dealers hesitate to change them, being of opinion that overnight an entirely different picture may be drawn.

So confident are some of the larger packers that the weakness of today may change tomorrow, that they are not rushing off to the mills, as previously they have been, their packings just as quickly as they are being accumulated. Of course, in the case of the commissions, a holding back can hardly be profitable, but in the case of the better grades with a still rather restricted supply coming in, there is a tendency to make an accumulation in warehouses rather than accept the reduced rates which the mills at this time are offering.

Inside reports which the packers have received, indicate that all the mills are running actively and that they have been operating and—unlike many other industries—there have been no labor difficulties to embarrass or restrict their output. On the other hand, trade is of opinion that in New York city there is considerable accumulation of paper stock and that the mills are drawing on this accumulation even at slightly higher prices than they are willing to pay for the local production, in the belief that by securing such supplies from outside, they will be able to maintain—mayhap even force down their prices for local stock.

Fine Paper Division Meets

The meeting of the Fine Paper Division attracted well nigh to a hundred per cent attendance. It was presided over by Edward A. Keller, under the new arrangement by which each of the two Divisions—the fine and the coarse—is particularly looked after by a chairman out of their own ranks.

In very recent days, as indicated in these volumns a week ago, complaints have been made informally on alleged violations of the Fair Practice Rules. The outstanding complaint a week ago was that the spirit of the cash payment plan for those who were delinquent in payments, was being violated by what was alleged to be the subterfuge of a direct loan by the head of one of the jobbing houses, so that delinquencies to his house could be met and further credit thereby be extended, the direct personal loan taking the place of the outstanding mercantile obligation.

This week it was charged by the head of a thoroughly representative house that an abuse had crept in regarding the matter of job lot sales, and that one house in particular took an order under a job lot quotation which could not possibly be supplied from any job lots on hand and only from a mill shipment. It is, however, only fair to add when this complaint was specifically registered, that this house had cancelled its lower job lot quotation and adhered to the previously adopted schedule.

These and allied matters were presented at the meeting of the Fine Paper Division, with the result of the appointment of a committee representing every branch of the business and who is charged with the responsibility of investigating all such complaints, and in the event of being unable to adjust them, report to the Division first, and finally to the Board of Governors of the Paper Trade Association of Philadelphia. On this committee will be Edward A. Keller, chairman; J. Howarth and George Weaver, Garrett-Buchanan Company, on book papers; Mr. Fishburn, Whiting Patterson Company, on writing papers,

and Mr. O'Rourke, of the D. L. Ward Company, on cardboard.

It is proposed that any firm having a complaint to make involving fair practice, will formally lay its case before this committee; that investigation will be made by the member of the committee particularly familiar with the character of the items involved, and after investigation will report back to the whole committee where an adjustment may be made with, of course, right to further appeal.

Much of the meeting was taken up by a discussion of direct mail selling, and the charge was directly made that one large producer was conducting an active direct sales campaign on sulphite bond at a price which was regarded as in violation of fair practice agreement. It is a fact that this particular concern never assented, as had nearly all the other mills, to the fair price agreement, but its activities had been so great that an attempt is to be made through conference to have what the trade regards as a most disturbing factor in the local market adjusted.

Norbert A. Considine, of the Paper House of Pennsylvania, was appointed to serve with Allen Whiting, chairman, on the committee specially charged with trying to solve this difficulty.

This afternoon, the members of the Fair Practice Committee and Trade Customs Committee held a meeting in the offices of the Garrett-Buchanan Company, at which, after a long discussion, a program of procedure was unanimously agreed upon. The chairman of the meeting was instructed to prepare a letter, formally setting forth the program of the committee, and this is to be sent out probably before the week closes.

Glazed and Fancy Paper Hearing

WASHINGTON, D. C., October 18, 1933—Minimum wages higher than 1929 were promised employees of the glazed and fancy paper industry in a statement made on Monday of this week by N. E. Neunez of Nashua, N. H., at the NRA code hearing before Deputy Administrator D. H. Tulley.

"We ask for the uniform minimum wage throughout the United States of 35 cents per hour for men and 30 cents per hour for women," Mr. Neunez said. "These minimum wages represent a substantial increase over the minima existing in 1929, when the minimum wage was generally 31 cents an hour for men and 27 cents an hour for women."

In July of this year, Mr. Neunez said, about nine per cent of his employees received less than the minimum wage set in the pending code. He stated that the industry as a whole pays good wages, the average hourly wage for all factory employees being 47.3 cents an hour in June-July 1933, and the weekly wage $22.16. He said that a lower minimum wage for female workers did not constitute discrimination in this industry, "since the women do the light jobs only and do not perform the same character of work as men."

Mr. Neunez asked for an average work week of 40 hours. He said the average work week in June-July 1933 was 46.8 hours, "and we expect by this reduction in hours to increase the number of our employees by not less than 260 people, which is an increase of over 17 per cent. This would bring the total number of factory employees to about 1800, which it is believed would constitute the greatest number of factory employees ever attached to this industry." He said that labor in the industry was mainly semi-skilled and home trained, with labor trouble being almost unknown, and "life-long terms of service common."

The glazed and fancy paper industry is composed of manufacturers of coated, printed and embossed papers, primarily for decorative purposes, Mr. Tulley said. It is solely a converting industry and its products are used mainly for decorative covering of packages. Principal raw materials of the industry are paper, adhesive, pigments, bronze powders, dyes and colors.

It was stated that the number of factory employees in the industry was about 1,520 as of May 1933 and the number of office employees about 280. The factory payroll is about $1,750,000 per year and the sales volume about $7,500,000 in 1932, which was a decrease of approximately 50 per cent from the total of $15,000,000 in 1929.

The code provides for a basic maximum work week of 40 hours, excepting for executive, supervisory and technical employees; outside salesmen; watchmen, chauffeurs, truckmen, licensed engineers and firemen and for employees engaged in emergency repair or maintenance work. In cases of seasonal peaks of demand, labor may be employed not to exceed 48 hours per week in not more than 8 weeks in any six months' period.

The code states that learners may receive 80 per cent of the minimum wage for a period of six weeks, "but no person who has worked a period of six weeks for any member of the industry as a learner may thereafter be classified as a learner." The salaries for office workers range from a minimum of $12 per week in towns of less than 2500 population to $15 per week in metropolitan centers. Wages above the minimum shall be equitably adjusted within 90 days after the effective date of the code. Superannuated employees are exempt from the minimum wage provision but the number of such workers in any class shall not exceed 5 per cent of the total workers in such class.

Those assisting Deputy Tulley were legal adviser, R. S. H. Dyer; labor advisers, John P. Burke; research adviser, Max Kossoris; industrial adviser, W. L. Carter of the Nashua Paper Company, Nashua, N. H.

Irving C. Fox, attorney for the National Retail Drygoods Association and R. A. Maish of the Dennison Manufacturing Company of Framingham, Mass., were listed as witnesses.

Irving C. Fox of the National Retail Drygoods Association asked for elimination of the paragraph entitled "Accounting-Selling," which reads as follows: "In arriving at any basic cost, the current market price of the necessary raw materials shall be used."

Mr. Fox stated that this would provide an arbitrary figure based on current market prices of one of the elements of the cost of production, below which cost of production no manufacturer is permitted to sell his product, thus preventing a manufacturer from passing on to the consumer any saving which he may have been able to effect by buying his raw materials at an advantageous time in an advantageous manner.

Mr. Maish of the Dennison Company was not in the audience when called upon to present an objection to article 8, in the original code which would provide for a limitation for machine hours in the industry to average 80 hours per week.

Assistant Deputy Tulley remarked upon the absence of this article from the revised code submitted by Mr. Neunez. The latter said that there had been much discussion of this article by members of the industry, and that those in opposition have succeeded in having it withdrawn from the revised code. Mr. Neunez said however that he was sure there would be a voice raised for a reinstatement of the article after the hearing. Assistant Deputy Tulley observed that such action would necessitate almost unanimous approval by members of the industry, with complete and accurate data submitted to the Administration to prove the "absolute necessity of this action."

Price Bros. Reorganization Plans Explained

Bondholders Protective Committee Summarizes Conditions Responsible for Acceptance of Bowater's Paper Mills Proposal—State Offer of Duke-Price-Aluminum Group Required Bondholders to Make Unwarranted Concessions

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 16, 1933—A summary of the conditions which were responsible for the acceptance of the plan of Bowater's Paper Mills, of London, England, for the reorganization of Price Bros. & Co., has been given by the Protective Committee for the bondholders in a letter which has been mailed to depositing holders of the bonds. The letter states that because the Duke-Price-Aluminum group represented substantial unsecured creditors and shareholders of Price Brothers the committee desired that they should be given every opportunity to propose a plan which the committee could approve and recommend. Notwithstanding improvements in their original proposal, however, the committee were unanimously of the opinion that the proposal required the bondholders to make unwarranted concessions. Under these circumstances the Committee resumed negotiations with the Bowater group and, ultimately the Committee, for reasons believed by them to be compelling, unanimously accepted the Bowater proposal. The letter continues:

"The Bowater proposal contemplates that, in accordance with the Deposit Agreement, a plan effectuating the necessary proceedings will be prepared and submitted to bondholders. The plan and other essential documents involve a mass of detail which it will take some time to work out. The work is being pushed as rapidly as possible but it is not yet possible to state definitely just how soon the plan can be submitted to the bondholders.

"In the meantime depositing bondholders are advised that among other things the Bowater proposal provides:

"1. That the principal amount of the bonds held by depositors who participate in the plan will remain as at present and in addition such depositors will receive 12 per cent of their present holdings in bonds in lieu of interest on the present bonds due August 1, 1932, February 1 and August 1, 1933, and February 1, 1934, and the security and lien position of the bonds will be preserved.

"2. That $5,000,000 of cash is to be provided in payment for securities which are to be junior to the bonds.

"The details of the proposal affecting the bonds (including the details of the provisions permitting, for a short time, the postponement or partial postponement of cash interest payments if not currenly earned) and of all other matters will be set forth in the plan which is to be submitted to the bondholders presently.

"Your committee feels that when the plan based on the Bowater proposal is submitted to bondholders, it will meet with a general favorable response.

"The purpose of this letter is solely to bring this information to the attention of depositors, who are not now asked to take any action."

Gains and Losses on American Dollar

The disappearance of the high premium on United States funds since the United States went off the gold standard has been of immense benefit to corporations here having to pay interest on American capital, and has already altered the whole financial outlook of such organizations as the Shawinigan Water and Power Company, which furnishes so much of the power used by pulp and paper companies in Quebec province. On the other hand it has resulted in a heavy loss to news print manufacturers to whom the premium had been an important source of revenue. The estimate has been made that in 1932 the income of the news print companies was increased by at least $10,000,000 by the premium on funds received in payment for exports to the United States. This source of income has now virtually disappeared. On the other hand the rise in the value of the pound sterling has increased the returns from exports to Great Britain.

Another Price War?

Circumstantial accounts are published here of a sharp conflict which has arisen between eastern and western producers of news print. One of the eastern mills is "understood" to have secured contracts for shipping news print into the Western United States territory, which had been considered the exclusive area of the Pacific Coast producers, and in retaliation a British Columbia news print producer is reported to have secured important contracts with a publishing syndicate in the Eastern United States for the supply of news print at a price roughly $8 a ton below the price formerly paid. Two mills in Quebec are reported to have undertaken to produce the news print to supply these contracts for the Pacific Coast company. The question is now raised as to whether this presages another price war, and also whether, under the NRA the United States will take action to prevent dumping.

TAPPI Notes

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will hold its next meeting at the Engineers Club, Philadelphia, Pa., at 6:30 Friday evening, October 27, 1933. C. C. Heritage, manager of the Coating Division, Oxford Paper Company, Rumford, Maine, will speak on the work of TAPPI in developing pulp and paper specifications. O. W. Calligan, chemical engineer of Edgar Brothers, Metuchen, N. J., will speak on domestic loading materials for papers. Members of the Pennsylvania-New Jersey Division of the Superintendents Association who will meet on Saturday are invited to be present.

R. W. Richardson, formerly with E. I. duPont de Nemours & Co., Wilmington, Del., is now engaged in research work at Baton Rouge, La.

A. N. Russell, formerly with the Dominion Engineering Works, Montreal, P. Q., is now with Millspaugh Ltd., Sheffield, England.

Frank Makara, formerly of McGill University, Montreal, P. Q., is now studying at Columbia University, New York, N. Y.

A. E. Kimberly, formerly of the Bureau of Standards, Washington, D. C., is now chemist for Curtis & Bros., Mt. Holly Springs, Pa.

CORRECTION

In the article entitled Tests of Regular and Stabilized 18-8 Alloy Welds in Sulphite Liquor which appeared in the PAPER TRADE JOURNAL, August 31, 1933, pages 29 to 34, the caption under Fig. 8 should have appeared under Fig. 11 and vice versa.

Activities of Fox River Valley Paper Mills

Second Oldest Paper Plant in Wisconsin Operating at Capacity Due to Heavy Demand for Watermarked Mimeograph Bond—Personnel Increased Approximately 20 Per Cent—Mead Paper Board Co. to Reopen Straw Board Plant at Menasha.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 16, 1933—With demand the best it has ever been for some of its newer lines of papers, the Patten Paper Company, Ltd., Appleton, Wis., second oldest mill in Wisconsin, has been operating on approximately a capacity basis since June 1, 1933.

Abandoning about five years ago its specialty of news print with 25 per cent or more of rag fiber, the company has enjoyed a phenomenal sale on one of its new products adopted at that time, its Patten water-marked mimeograph bond. The Appleton mill is said to be producing more mimeograph paper than any mill in the world. It is distributed through 96 wholesale paper houses in the United States and is exported to Cuba, Central and South America, and the Hawaiian Islands. The tonnage for the first nine months of 1933 is 15 per cent ahead of the similar period last year, and September is the largest month in the company's history with the exception of one.

Sales of the new Patten Rag Text, a water-marked, deckle-edged paper containing 25 to 30 per cent rag stock, have been growing rapidly since its introduction several months ago. It is produced in white and six colors, both laid and wove. Fifty jobbers are now listed.

Employees have been placed on a six-hour shift basis, with an increase in personnel of about 20 per cent. Wage increases have been made to give workers approximately the same pay for the shorter day that they received before.

Straw Board Mills to Resume

Manufacture of straw board will be resumed before November 15 at the former Island Paper Company mill at Menasha, Wis., according to Jacob Levine, who is in charge of arrangements for reopening of the mill. Fifty men will be employed. These developments follow purchase of the mill by the Mead Paper Board Company, of Chillicothe, Ohio. Aside from the adjustment of a few legal technicalities, the company is ready to proceed with repairs, so early production can be started.

Northern Paper Mills Add Workers

Adoption of the NRA code by the Northern Paper Mills, Green Bay, Wis., has resulted in the employment of eighty additional workers, according to Judson G. Rosebush, general manager.

Hourly rates on six-hour shifts have been increased 16 2-3 per cent, with a minimum of 40 cents per hour. Day workers have been given increases on hourly rates of 11 per cent, and a minimum rate for men of 40 cents an hour and for women 30 cents. Only one cut in hourly rates had been given employees during the entire period of the depression. Payment of bonuses has been discontinued until a thorough study can be made in the light of existing equipment and conditions.

Employment has been steady for a larger number of men because the workers volunteered to go on a six-hour shift in December, 1931, when 75 were threatened with the loss of their jobs. The total number of men above the pay roll of normal times is 155.

Forest-Products Laboratory Reports

Widening of the domestic supply of woods suitable for print paper is indicated by the United States Forest Products Laboratory, Madison, Wis., in its annual report.

Pointing out that within the last decade use of spruce and balsam in pulping has decreased from 57 to 39 per cent, the report explains that other woods have been adapted to newer processes, such as the pine, hemlock and other wood formerly considered unusable.

"The year's work of the laboratory considerably advanced the project of widening the domestic supply of woods suitable for print paper by adapting processes to resinous woods," the report states. "Experiments with the new soda base and ammonia base processes resulted in true sulphite pulps. The additional chemical cost over older sulphate or kraft processes is not large and development of a satisfactory recovery system, now well advanced, should reduce the differential still further."

Developments with less valuable woods in Wisconsin and the nation have resulted in the prediction, in the report, that new processes will "ultimately replace much foreign pulp wood." Use of sawdust waste is also seen as a future pulping material for tissue papers.

Work of Paper Chemistry Institute

Photographing and enlarging of cross-sections of various types of paper by a unique system have been developed by Professor Walter E. Rogers, of Lawrence College, Appleton, Wis., largely for the benefit of the Institute of Paper Chemistry. The cross-sections, enlarged with the assistance of Bausch & Lomb and Eastman companies, have been reproduced to a scale 1,600 times their normal size. New possibilities of research are opened up, according to Dr. Harry F. Lewis, Dean of the Institute.

Another contribution to research is the taking of motion pictures of paper fibers, placed under a microscope and irritated to produce swelling action. The method was worked out by Miss Olga A. Smith, instructor of botany at Lawrence College. It is believed by Dr. Lewis, who collaborated in developing the technique, that this is the first step in the use of the microscopic motion picture camera as a tool in papermaking.

These camera studies will be made the basis of future study at the Institute of Paper Chemistry.

News of the Industry

An addition is to be built to the office of the Gilbert Paper Company, Menasha, Wis., to provide for increased working and laboratory space. The approximate cost is $8,000.

Papers have been filed by the State of Wisconsin in a suit against the Tomahawk Hydro-Electric Company, Tomahawk, Wis., for $2,446.16 in unpaid taxes and interest. The suit will be tried in the Dane County Circuit Court.

The Atlas mill of the Kimberly-Clark Corporation at Appleton, Wis., has changed its operating schedules to conform to the wall paper manufacturers' code. Fourteen additional men have been added, and the plant is operating at capacity on samples and stock for next season.

Cutting of timber has been stopped for the time being by the Northern Pulpwood Company, at Iron River, Wis. Hundreds of men have been employed in the woods and the remainder of the cut is being hauled to Iron River for loading. Operations will be resumed at a later date.

Chicago Paper Market Displaying Firmness

Demand for Various Standard Grades of Paper Continues Persistent—Book, Cover and Sulphite Bond Papers Holding Up Well—Kraft Wrapping Paper Section Exhibits Strong Undertone—Pulp Quotations Steady Despite Light Request

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 16, 1933—Chicago markets remained firm during the week. Some rumors have been going around about "chiseling" but there is evidently no reliable information to substantiate this rumor and it is clear that the morale of the Chicago market is excellent. Naturally, the market is awaiting the signing of the code. Pulp prices are reported firm in spite of a slowing down of demand. Reports indicate a better average production and market situation than earlier in the year.

Little Change in Specific Markets

Inasmuch as general market conditions remain about the same, little change is reported in specific markets. Business in fine papers during the week has held up to the recent average. Sulphite bonds retain their previous position. Books and covers have shown no indication of weakening. Krafts show a strong undertone and an anticipation of improvement. Specialties for the holiday season are moving fairly well. Ground woods and news print offer little in the way of news over accounts of previous weeks. The board report is similar. Waste papers are little changed. The market, obviously, is awaiting two things—some indication of business trend and the signing of the Code of Fair Practice which occupied so much of the time of the N.P.T.A. at its Chicago meeting last week.

National Safety Congress Held

The paper industry made a splendid showing at the recent National Safety Congress held in Chicago the first week of the month. The Paper and Pulp Section was well attended and some interesting discussions were featured. One of the high lights was the attendance of Governor Louis J. Braan of Maine, who spoke before the first session, paying high tribute to Maine's accident prevention efforts and referring to the state's success in winning seven of sixteen prize awards made to the three winners in each of five groups of paper companies throughout the country. The awards were made in the Pulp and Paper Safety Contest in which 98 paper mills participated. Those who received honors were Hollingsworth & Whitney; International Paper; St. Croix Paper; Fraser Companies, Ltd., Champion Coated Paper Company; Cornell Wood Products Company; Consolidated Water Power and Paper; Port Huron Sulphite and Paper Company; Kimberly-Clark Corporation; Container Corporation. The Executive Committee which will carry on for the next twelve months includes the following:

General chairman, H. G. Gilson, Oxford Paper Company; vice chairman—membership—H. D. Banta, Hoberg Paper and Fibre Company; Secretary and News Letter Editor, F. L. Irvin, St. Croix Paper Company; Engineering Committee, George J. Adams, International Paper Company; Health, Dr. L. H. Frechtling, Champion Coated Paper Company; Poster, Don C. Hunter, Oxford Miami Paper Company; Program, E. E. Grant, Crystal Tissue Company; Statistics, Arthur Murray, Container Corporation of America. Members at large include Ernest August, Mead Corporation; W. J. Brennan; W. H. Brydges, Bedford Pulp and Paper; W. A. Gleason, Hammermill Paper; John Lundrigan, International Paper; W. J. Peacock, Northern Paper Mills; J. J. Plzak, Consolidated Water Power and Paper; Samuel Pruyn, Finch-Pruyn; B. D. Rogers, Bird & Son and F. H. Rosebush, Nekoosa-Edwards Paper Company.

Paper Premiums Popular

The subject of paper premiums is one that is likely to be of more than ordinary interest to the paper market. *Printed Salesmanship*, September issue, contains an article by G. E. Mitchell on this subject in which he points out "that a mighty demand for paper and cardboard premiums and advertising novelties of all kinds has swept over the country lately. They are being employed to promote the sale of every type of merchandise and to appeal to every class of people. It is reported that paper premiums seem best adapted to widespread use because of their inexpensiveness and adaptability. Among the most popular types are cut-out sets, cards, paper hats, games, toys, magic sets, flip books, juvenile books and playing cards. The paper industry will be interested in this classification—not that it doesn't already know about the increased demand.

News of the Trade

An elaborate direct mail piece comes from the Swigart Paper Company describing the properties of Hammermill Bond. Under the headings of "Diagnosis," "Prescription" and "Recovery" a very interesting bit of copy about business in general, future prospects and the need of a "quality-utility" paper to meet the immediate needs of recovery, feature the advertising piece. Not the least impressive is the unique border—in red—surrounding the big broadside. Swigart has also recently been announced as Chicago representative for the Redemption Bond line of the Whiting-Plover Paper Company.

A final check-up shows that 104 golfers and would-be golfers attended the second annual golf party staged on October 6 by the Middle West Division of the Salesmen's Association of the Paper Industry for the benefit of those attending the National Paper Trade Association meeting. Over half of those in attendance were guests who had a royal good time and who were firm in their conviction that the events should be "annual" in every sense of the word. The successful bit of entertainment which came as a fitting climax to a big "Paper Week" in Chicago, is a big mark on the credit side of the S.A.P.I. ledger. Golf Chairman W. J. Tilden, President Harold Knott, Vice-President Creighton Whiting, and the members who helped put the event over, deserve a lot of credit for the successful wind-up to their big golfing season.

"Rags in Paper," number 49 of the series published by the Rag Content Manufacturers Association, reaches Chicago executive desks this week. The issue carries a statement from H. H. Griswold, former president of the New York State Bankers Association, on the value of quality merchandise. "Quality," says Mr. Griswold, "is what the American people like, what they have been educated to appreciate and what they want. Any sincere effort to foster a return to the normal desire for quality goods is worth the support of everyone concerned with the return of normal business conditions."

General Code of Fair Competition for the Paper and Pulp Industry

The following is the General Code of Fair Competition for the Paper and Pulp Industry as revised in conference with Deputy Administrator W. W. Pickard for submission to the Administrator and to the President:

To effectuate the policies of Title I of the National Industrial Recovery Act the following is hereby established as a Code of Fair Competition for the Paper and Pulp Industry.

Article I—Definitions

1. Where used in this Code and in all codes subordinate hereto the following definitions shall apply:

"Industry."—The manufacture in the United States from pulpwood, wood pulp or other stock or pulp, of all paper (except such paper now in regular use in the making of daily newspapers as is specifically mentioned and described in Schedule "A" hereof), such paperboard as is listed in Schedule "B" attached, and pulp; provided, however, that if and when the provisions of this Code shall be extended to cover any products of converters of paper and paperboard, then the word "Industry" shall include the manufacture of same.

"Member."A natural person, partnership, association, corporation, trustee, trustee in bankruptcy or receiver engaged in such industry.

"Division."—A division or section of the industry recognized as such by this Code.

"Act."—Title I of the National Industrial Recovery Act.

"Administration."—The National Industrial Recovery Administration.

"Administrator."—The National Industrial Recovery Administrator.

Article II—Organization

1. The Executive Committee of the American Paper and Pulp Association is hereby designated as the Agency for administering the provisions of this Code and is hereby named and is hereinafter referred to as "The Paper Industry Authority." The Administrator may designate three persons as additional advisory members thereof; the member or members so designated shall have no vote bu in all other respects shall be members of the said Paper Industry Authority.

2. The Industry is hereby divided into divisions as set forth in Schedule C hereto attached. Any question as to the division into which any particular grade, class or kind of paper, paperboard or pulp or any product of conversion of any of them may fall, shall be determined by the Paper Industry Authority.

In the event that the jurisdiction of the Code shall be extended to cover the manufacture of products which do not fall within any such division, the Paper Industry Authority may create new divisions to include such products, and the members of such divisions may then adopt and submit divisional codes as provided in Article III hereof.

The Paper Industry Authority may create new divisions by the submission of any of such divisions or by the consolidation of any two or more of such divisions, provided, however, that no such subdivision or consolidation shall be made without the consent of the divisional association of each division affected thereby.

3. In each division there may be one divisional association to which every member of the industry engaged in the manufacture of any product included in such division shall be eligible for membership. Each such divisional association shall be eligible for membership in the American Paper and Pulp Association.

4. The expenses of administering this Code shall be apportioned among the various divisions in accordance with a formula to be adopted by the Paper Industry Authority. The expenses of administering the subordinate Code of each Division, together with the proportion of the expense of administering this Code, allocated to such Division, shall be borne pro rata in accordance with a formula to be adopted by the Executive Authority of such Division by all members of such Division who are subject to such Codes. Divisional Associations shall be responsible for the payment of all Code administration expense.

Article III—Divisional Codes

1. Each such divisional association may adopt a divisional code and may either submit the same as a supplement to this Code for the approval of the President of the United States, or may submit the same subsequently through the Paper Industry Authority to the Administrator for his approval. Such divisional codes, when so approved, shall have the same force and effect as to the divisions of the industry affected thereby as this Code.

2. Such divisional codes shall be subordinate to this Code and shall specifically recognize this Code as applicable to all members of the industry engaged in manufacturing products falling within the division for which such divisional code is submitted.

3. Pending action by the Paper Industry Authority each division shall include such grades, classes and kinds of paper, paperboard or pulp as are generally recognized by custom as falling within the classification indicated by the name of such division.

4. Each such divisional code shall designate an agency for the purpose of administering such divisional code which shall be denominated "The Executive Authority" of such division.

5. Such divisional codes may contain such provisions relating to said division as may be appropriate for inclusion in a Code of Fair Competition under the Act, provided that no such code shall contain any provision contrary to or inconsistent with the provisions of this Code.

Article IV—Hours of Labor

1. Employees in the industry shall not be required to work hours in excess of the limits prescribed in the following schedule:

SCHEDULE OF WORKING HOURS

(a) Watchmen: 8 hours in any one day and 56 hours in any one week.

(b) Chauffeurs, truckmen, switching crews, engineers, firemen and electric and hydro-electric operators, and filter plant employees: 168 hours in any period of four consecutive weeks.

(c) Tour-workers in continuous process operations: 8 hours in any one day and an average of 40 hours per week in any period of 13 consecutive weeks; provided, however, that additional hours may be worked— (1) To avoid a shut-down due to the temporary absence of a relief worker, (2) In changing wires and machine clothing, and (3) In clean ups, wash ups, and ordinary repairs and ad-

justments in cases where a machine is shut down for a period of not less than eight consecutive hours.

(d) All other laborers, mechanical workers or artisans employed in any plant, mill or factory or on work connected with the operation of any such plant, mill or factory: An average of not more than 40 hours per week in any period of 13 consecutive weeks, but not more than 48 hours in any one week; provided, however, that time worked in excess of eight hours in any one day shall be paid for at not less than time and one-third.

(e) Employees regularly engaged in an executive, secretarial or supervisory capacity receiving $35.00 or more per week and outside salesmen: No limitation.

(f) All other employees: An average of 40 hours per week in any calendar year and an average of not to exceed 48 hours per week in any period of 13 consecutive weeks.

Provided, however, that no limitation on hours of work contained in said schedule shall apply to employees of any class when engaged in emergency repairs or emergency maintenance work.

2. At such intervals as the Paper Industry Authority shall prescribe, every member shall report to the Paper Industry Authority:

(a) The number of man hours worked under subdivisions c (1), c (2) and c (3) of said schedule and the ratio which said man hours bear to the total number of man hours of labor under such subdivisions; and

(b) Shall furnish the Paper Industry Authority such information as it may require in order to enable it to determine whether the limitations contained in said schedule have been exceeded.

3. No employee shall be permitted to work for more than one member of the Industry an aggregate number of hours in excess of the number prescribed in said schedule.

Article V—Wages

1. The minimum rate of wage of any laborer, mechanical worker or artisan employed in any plant, mill or factory or on work connected with the operation of any such plant, mill or factory shall be as follows:

(a) Northern Zone, which shall consist of all of the territory of the United States except the States named in subdivisions (b) and (c): Male labor 38 cents per hour. Female labor 33 cents per hour.

(b) Central Zone, which shall consist of the States of Delaware, Maryland, Virginia, West Virginia, Kentucky, Tennessee and North Carolina, and the District of Columbia: Male labor 35 cents per hour. Female labor 30 cents per hour.

(c) Southern Zone, which shall consist of the States of South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas and Texas: Male labor 30 cents per hour. Female labor 25 cents per hour.

Provided, however, that in case the rate per hour for the same class of labor was on July 15th, 1929, less than such minimum rates, the rate per hour paid shall be not less than the rate per hour paid on July 15th, 1929, but in no event shall the rate per hour be less than ninety per cent (90%) of the rates above specified. And provided, further, that where a state law provides a higher minimum wage than is provided in this Code, no person employed within such state shall be paid a wage below that required by such state law.

2. Pieceworkers shall be paid at rates which will yield a worker for an hour's work not less than the minimum rate prescribed.

3. Learners in skilled and semi-skilled occupations, for a period of six (6) weeks, may be paid not less than eighty per cent (80%) of the minimum rates prescribed in the foregoing Sections, but no person who has worked a period of six weeks for any member as a learner, may thereafter be classified as a learner. No more than five per cent (5%) of the employees in any group or class may be classified as learners.

4. The minimum rates of wages for all other employees except commission salesmen, shall be as follows:

Not less than fifteen dollars ($15) per week in any city of over 500,000 population, nor less than fourteen dollars and fifty cents ($14.50) per week in any city between 250,000 and 500,000 population, nor less than fourteen dollars ($14) per week in any city between 2,500 and 250,000 population, nor less than twelve dollars ($12) per week in towns of less than 2,500 population. Provided, however, that office boys or girls under eighteen (18) years of age may be paid not less than eighty per cent (80%) of such minimum wage, and the number of employees classified as office boys or girls shall not exceed five per cent (5%) of the total number of employees covered by the provisions of this Section.

5. The minimum wages hereby prescribed shall not in any way be considered as a discrimination by reason of sex and where, in any case, women do substantially the same work or perform substantially the same duties under the same conditions as men they shall receive the same rate of wages as men receive for doing such work or performing such duties.

6. The wage rates of all employees receiving more than the minimum rates herein prescribed shall be reviewed and such adjustments, if any, made therein as are equitable in the light of all the circumstances, and within ninety (90) days after the effective date hereof, the Paper Industry Authority shall report to the Administrator the action taken by all members of the industry under this Section.

7. Workers who are physically handicapped are exempted from the provisions of Sections 1 and 4 hereof, but the number of such workers in any class shall not exceed five per cent (5%) of the total workers in such class.

Article VI—General Labor Provisions

1. No person under sixteen (16) years of age shall be employed. Provided, however, that where a state law provides a higher minimum age, no person below the age specified by such state law shall be employed within such state.

2. Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection. No employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing. Employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

3. Labor agreements now in force between members and their employees shall be affected only by such provisions of this code as may prescribe higher wages and shorter hours than are provided for in such agreement.

Article VII—Accounting—Selling

1. The Paper Industry Authority shall, as soon as practicable, propose a standard method of accounting and costing for the industry and submit the same to the Adminis-

trator. When it shall have been approved by the Administrator, every member shall use an accounting and costing system which conforms to the principles of, and is at least as detailed and complete as, such standard method.

2. Each member shall, on or before 30 days after the effective date of this Code, file with the Executive Authority of his division, or divisions, complete schedules in such form as such Executive Authority shall prescribe of prices and terms and conditions of sale for domestic consumption (including all differentials, discounts, trade allowances and special charges) of all products falling within the scope of the division offered for sale by any such member, and shall so file all subsequent changes therein or revisions thereof at least twenty-four (24) hours prior to the effective date of any such changes or revisions. When any member shall file any such schedule of prices, or any revision thereof, any other member may also file a revision of its own schedules and if such other member shall so desire and state therein, the same shall be effective as of the same date as the schedule or revision thereof first in this sentence referred to. Each such schedule of prices shall conform to all trade practices and other provisions established in and by this Code or any pertinent subordinate code or any amendment or supplement to this Code or to such subordinate code. The Executive Authority shall send to the Paper Industry Authority and to each member of the division and to any others concerned requesting a copy thereof, a copy of such schedules and of all changes and revisions thereof so filed.

The Executive Authority of any division, from time to time with the approval of the Paper Industry Authority, may, in respect of all or any of the products of that division, increase to such extent as it shall find to be appropriate to assure fair competition in respect of such products the twenty-four (24) hour delay above provided after the filing of any schedule for the taking effect thereof. Provided, however, that pending the holding of a meeting of the Paper Industry Authority the Chairman thereof may grant an interim approval of such action. The Executive Authority shall give immediate notice of such increase to the members of the division.

The subordinate code of any division may contain a provision limiting the time within which future deliveries may be contracted for at the prices scheduled at the time of the contract; and the Executive Authority of each division may require the filing in such manner as it shall prescribe of such data as it may require in respect of contracts for future deliveries existing at the effective date of this Code.

3. No such schedule of prices and terms and conditions of sale filed by any member, or in effect, at any time in any quarter of any calendar year shall be such as to permit the sale of any product at less than the lower of the following:

(a) The cost of such product to such member during the last period of three consecutive months or three accounting periods of four weeks each, ending not less than thirty (30) days prior to the first date of such quarter which cost shall be determined pursuant to the method of accounting and costing prescribed by the Paper Industry Authority under this Article as soon as that method is prescribed and theretofore pursuant to the method employed by such member subject to such preliminary rules as the Paper Industry Authority shall from time to time prescribe.

(b) The lowest price schedule for such product under the provisions of this Article by any other member and then in effect.

Each schedule filed under this Article shall state whether the prices, terms and conditions therein specified are justified under subdivision (a) or under subdivision (b) of this Section, and in the case of justification under subdivision (b) shall identify the schedule or schedules of the other member or members of the industry justifying such prices, terms and conditions. A schedule justified upon the basis of the schedule or schedules of another member or members shall become void forthwith upon the cancellations or revisions upward of such justifying schedule or schedules.

In applying the provisions of this Section and of Sections 4 and 5 of this Article, all prices shall be calculated on a delivered basis, and the cost of delivery shall be considered a part of the cost of the product; provided, however, that in the case of each product the Executive Authority of the division in which such product falls may amplify, define or modify this principle.

Notwithstanding the provisions of this Section, discontinued lines or damaged goods or seconds of any product may be disposed of in such manner and on such terms and conditions as the Executive Authority of the division into which such products fall may approve.

4. The Paper Industry Authority shall have power on its own initiative, or on the complaint of any member, to investigate any price for any product shown in any schedule filed hereunder by any member, and for the purpose of the investigation thereof to require such member to furnish such information concerning the cost of manufacturing such product as the Paper Industry Authority shall deem necessary or proper for such purpose. If the Paper Industry Authority after such investigation shall determine that such price violates the provisions hereof, or would tend to render ineffective or seriously to endanger the maintenance of this or any subordinate divisional code, the Paper Industry Authority shall so notify such member and the Executive Authority with which such price was filed, and thereupon such price shall become void and of no effect. Pending such investigation, the Administrator may suspend any such price. A notice of all decisions of the Paper Industry Authority under this Section, together with the reasons therefor, shall be filed with the Administrator, and shall be subject to suspension, cancellation or modification by the Administrator.

5. Except in fulfillment of bona fide contracts existing on the effective date of this Code, no member of the industry shall sell any products of the industry for domestic consumption at a price or prices lower than or upon terms or conditions more favorable than stated in his price schedule filed as hereinbefore provided.

6. The Executive Authority of any division may, with the approval of the Paper Industry Authority, suspend for any period of time and from time to time all or any of the provisions of Sections 2, 3, 4 and 5 of this Article in respect of any or all of the products of such divisions; provided, however, that pending the holding of a meeting of the Paper Industry Authority the Chairman thereof may grant an interim approval of such action.

Article VIII—Reports—Statistics

1. Each member shall prepare and file with the Executive Sceretary of the Paper Industry Authority at such times and in such manner as it may prescribe, statistics of plant capacity, volume of production, volume of sales in units and dollars, orders received, unfilled orders, stocks on hand, inventory both raw and finished, number of employees, wage rates, employee earnings, hours of work and such other data or information as the Paper Industry Authority of the Administrator may from time to time require. Any or all information so furnished by any member shall be subject to checking for the purpose of verification by an examination of the books and accounts and records of such member by any disinterested accountant or

accountants or other qualified person or persons designated by the Paper Industry Authority.

2. Except as otherwise provided in the Act, or in this Code, all statistics, data and information filed in accordance with the provisions of this Code hereof shall be confidential and the statistics, data and information of one member shall not be revealed to another member. No such data or information shall be published except in combination with other similar data and in such a manner as to avoid the disclosure of confidential information. The Paper Industry Authority shall arrange in such manner as it may determine for the publication currently to members of each division, of the divisional totals of orders received, unfilled orders, shipments, stocks of finished goods on hand and production.

3. The Paper Industry Authority shall make to the Administration such reports as the Administrator may from time to time require.

4. In addition to information required to be submitted to the Paper Industry Authority there shall be furnished to Government Agencies such statistical information as the Administrator may deem necessary for the purposes recited in Section 3(a) of the Act.

Article IX—General Provisions

1. If any member is also a member of another industry, the provisions of this Code shall apply to and affect only that part of his business which is included in this industry and if the products of any member fall in more than one division of the industry the provisions of any divisional code shall apply to and affect said member only as to products falling in such division.

2. In the event that the divisional association or Executive Authorities of any two or more divisions shall be unable to agree on any matter or matters affecting such divisions, the Paper Industry Authority shall decide such matter, and its decision, when approved by the Administrator, shall be binding on all concerned.

3. The Executive Authority of any division may formulate a complaint to the President of the United States, pursuant to the provisions of Subdivision (e) of Section 3 of the Act, that any paper, paperboard or pulp is being imported into the United States in substantial quantities or in increasing ratio to domestic production of any competitive paper, paperboard or pulp, on such terms or under such conditions as to render ineffective or seriously to endanger the maintenance of this Code, or of any divisional code subordinate hereto and deliver the same to the Paper Industry Authority which shall transmit such complaint to the President.

4. The Paper Industry Authority shall have power to investigate alleged violations of this Code and acts or courses of conduct by any member or divisional association which are or appear to be contrary to the policy of the Act or which tend or may tend to render ineffective this Code or any divisional code and to report the same with recommendations to the Administrator.

5. The Paper Industry Authority may, on its own initiative, or upon application from any Executive Authority shall, present to the Administrator recommendations based on conditions in the industry which will tend to effectuate the operation of this Code and the policy of the Act and in particular along the following lines:

(a) For the establishment of rules of Fair Trade Practice for the industry and the codification of its trade customs, and the enforcement thereof.

(b) For the establishment of a standard method for determining the current cost of any product of the industry, and for a requirement that no member shall sell any such product below such cost.

(c) For restrictions on the creation of new facilities for the manufacture of any product of the industry or on the acquisition by any member of new equipment for such manufacture, and on the shifting of equipment from the manufacture of one kind or type of such product to another kind or type thereof.

(d) For the establishment of terms and conditions regarding sales to dealers and distributors by members of the industry.

(e) For the establishment of plans to bring about a reasonable balance between the production and consumption of the products of the industry.

Such recommendations, when approved by the Administrator, shall have the same force and effect as other provisions of this Code.

6. Any work or process incidential to, and carried on by a member at his plant as a part of the manufacture of any product of the industry, shall be regarded as a part of the industry.

7. In order to maintain at all times an adequate domestic supply of raw material for the use of the industry, it is the declared purpose of the industry to conserve forest resources and bring about the sustained production thereof. The Paper Industry Authority and the executive authorities of the respective divisions shall cooperate with the Secretary of Agriculture and other National and State officials and agencies and with the code authorities of other industries in planning such practical measures as may be necessary to accomplish such declared purpose. And shall, upon the request of the Secretary of Agriculture, join with the Lumber and Timber Products Industries in any conference which may be held pursuant to the provisions of Article X of the Code of Fair Competition of Lumber and Timber Products Industries approved by the President on August 19, 1933.

8. The Paper Industry Authority shall make a study of conditions in the industry to determine the feasibility of the adoption of a shorter working day and shall, within three (3) months after the approval of the Code, make a report of its findings to the Administrator.

9. Such of the provisions of this Code or of any divisional code as are not required to be included therein by the Act may, with the approval of the President of the United States, be modified or eliminated as changes in circumstances or experience may indicate.

10. This Code and each divisional code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of Clause 10 (b) of the Act, from time to time to cancel or modify any order, approval, license, rule or regulation, issued under Title I of said Act, and specfically to the right of the President to cancel or modify his approval of such code or any conditions imposed by him upon his approval thereof.

11. Proposed amendments to this Code or to divisional codes, duly adopted by the organization concerned, may be presented by the Paper Industry Authority to the Administrator and when approved by him, such amendments shall become a part of such code.

12. This Code shall become effective on the second Monday after the date upon which it shall be approved by the President of the United States.

Schedule A

Paper, the manufacture of which is excluded from the industry.

(a) The product referred to as "standard news print paper" in paragraph 1672 of the Tariff Act of 1922 and in paragraph 1772 of the Tariff Act of 1930.

(b) All other papers, except rotogravure paper, when, but only when and only to the extent that, such other papers are manufactured and sold for regular use in the making of daily newspapers.

Schedule B

Binder Board and all other Wet Machine Boards.
Bristol Boards.
Cardboard and Mill Blanks, coated or surface-treated subsequent to initial manufacture.
Lightweight Chip Boards, Bogus Wrapping, Sheathing Paper, Indented Ham Wrapping.
Sulphate Boards and Sulphate Corrugating Materials.
Specialty Folding and Specialty Non-Folding Boards, including all boards made from prime or fresh wood pulp, jute stock and rope stock.

Schedule C

Binder Board Division
Blotting Paper Division
Book Paper Division
Bristol Board Division
Cardboard Division
Cellulose Wadding Division
Cover Paper Division
Fibreboard Division
Glassine and Greaseproof Paper Division
Groundwood Paper Division
Kraft Paper Division
Leatherboard Division
Lightweight Chip Board Division
Paper Shipping Sack Division
Pulp Producers Division
Soda Pulp Division
Specialty Paper and Board Division
Sulphate Pulp and Board Division
Sulphite Paper Division
Tissue Paper Division
Vegetable Parchment Division
Writing Paper Division.

British Columbia Resumes Interest

TORONTO, Ont., October 16, 1933—First interest payments under the amended financing plans of the British Columbia Pulp and Paper Company were paid on October 16, according to word from Vancouver. This is the result of the improved condition of the company's affairs, according to President Lawrence Killam.

Last May a majority of the holders of the $3,324,000 outstanding 6 per cent. first mortgage bonds voted approval of modifications in the trust deed whereby semi-annual installments of interest falling due in 1933 and 1934 would be postponed to be payable in order of their maturity as and when cash available from the operations should be sufficient to pay them. Sinking fund installments which fell due in 1932, 1933 and 1934 were cancelled. Interest which fell due on the 6 per cent, mortgage sinking fund gold bonds May 1, 1933, were paid October 1, together with interest from May 1 at 8 per cent per annum. Mr. Killam reports a general improvement in the pulp situation on the Pacific Coast, despite the continued low price level. Both the Woodfibre and Port Alice plants have been operated full time this year. The spot market for pulp has moved into higher ground but most of the company's business is on a contract basis. Increased demand is expected to bring about a gradual rise in prices. Most of the company's production goes to the Orient, although a considerable proportion goes to the U. S. and Europe.

Bids for Government Paper

WASHINGTON, D. C., October 18, 1933.—The Government Printing Office has received the following bids for 29,100 pounds of 50 per cent rag white index paper: R. P. Andrews Paper Company, at 9.83 cents per pound; Barton, Duer & Koch Paper Company, 9.93 cents; Virginia Paper Company, 13.25 cents; Stanford Paper Company, 13.2 cents; Whitaker Paper Company, 12.5 cents; Old Dominion Paper Company, 13.49 cents; Reese & Reese, Inc., 9.83 cents; Aetna Paper Company, 10.22 cents; Walker-Goulard-Plehn Company, Inc., 10 cents less 2 per cent; Dobler & Mudge Company, 11.85 cents; Perkins-Goodwin Company, 9.88 cents; Cauthorne Paper Company, Inc., 11.94 cents, and C. A. Hubbard, 10.68 cents.

For 18,400 pounds of white index paper: R. P. Andrews Paper Company at 9.69 cents per pound; Barton, Duer & Koch Paper Company, 9.7 cents; Stanford Paper Company, 13.2 cents; Mathers-Lamm Paper Company, 11.4 cents; Old Dominion Paper Company, 13.49 cents; Reese & Reese, Inc., 9.7 cents; Aetna Paper Company, 9.67 cents; Walker-Goulard-Plehn Company, Inc., 10 cents less 2 per cent; Whiting Paper Company, 10 cents; Dobler & Mudge Company, 11.85 cents; Perkins-Goodwin Company, 9.88 cents, and Corrill A. Hubbard, 10.48 cents.

The Government Printing Office has announced the following paper awards:

Reese & Reese were awarded the contract for furnishing 3,000 sheets of 22 x 28 gray photo mount board at $46.55 per M sheets, bids for which were received on September 18.

Walker-Goulard-Plehn will furnish 5,000 pounds of 50 per cent rag white index, 22¼ x 28 at 10.25 cents per pound less 1 per cent, bids for which were received on September 15.

Barton, Duer & Koch will furnish 10,000 pounds of blue calendered tag board in 23¼-inch rolls at 7 cents per pound, bids for which were received on September 8.

The same firm will also furnish 3,000 sheets of 22 x 28. 4 ply red railroad board at $36.30 per M sheets, bids for which were received on September 6.

The Virginia Paper Company will furnish 100,500 sheets of 20 x 24 and 21,000 sheets of yellow gummed paper at $8.37 per M sheets, bids for which were received on September 1.

Barton, Duer & Koch Paper Company will furnish 10,000 pounds of salmon calendered tag board at 7c per pound. The Japan Company will furnish 2,500 sheets of white Japanese tissue paper at $20 per ream and 2,500 sheets same, different size at $5.00 per ream. Bids for all of these items were received on August 30.

The Barton, Duer & Koch Company will also furnish 250,000 pounds of manila calendered tag board in 23¼ and 26½-inch rolls at 6.25 cents per pound and 10,000 pounds of same blue in 23¼-inch rolls at 7 cents per pound.

Walker-Goulard-Plehn Company will furnish 2,000 pounds No. 1 gummed kraft paper in 24-inch rolls at 9.5 cents per pound, bids for which were received on October 4.

To Hear Silver Bullion Case

HOLYOKE, Mass., October 17, 1933—The famous silver bullion case between the American Writing Paper Company, Inc., and the Holyoke Water Power Company is expected to come up in the Federal Circuit Court of Appeals some time this month in Boston. The paper company tendered silver bullion in payment of its water rentals several times and several times they were refused. By agreement the case was taken to court and from the verdict of that court the water power company took an appeal.

Obituary

Arthur P. Miller

ITHACA, N. Y., October 16, 1933—Arthur P. Miller, aged 56, member of the firm of T. G. Miller Sons Paper Company, died October 9 at his home near Glenside. Death was caused by heart trouble.

Born in Ithaca August 5, 1877, Mr. Miller resided here all his life. After being graduated from the grade schools, he attended Ithaca High School, being graduated in 1895.

Mr. Miller entered the paper business in October, 1895, with his father, T. G. Miller, founder of the business, and had continued in it ever since.

In addition to his many other activities, Mr. Miller always found time for his horses. He had been a lover of horses for many years and even with the advent of automobiles, he retained his stables and spent considerable time in caring for his animals.

He was a member of Ithaca Lodge of Elks, the Rotary Club, Torrent Hose Company No. 5, and the Veteran Volunteer Firemen's Association.

Besides his widow, he is survived by one son, Thomas G. Miller; his mother, Mrs. Ella P. Miller; one brother, Ernest A. Miller, and one sister, Mrs. C. S. Wilson of Hall, N. Y.

Harold D. Cornwall

SYRACUSE, N. Y., October 16, 1933—Harold Davenport Cornwall, of Beaver Falls, paper manufacturer, trustee of the New York State College of Forestry, Syracuse University, and formerly chairman of the Lewis County Democratic committee, died in Faxton Hospital, Utica, late Saturday night. He was 52 years old.

Mr. Cornwall was graduated from the College of Law, Syracuse University, with the class of 1903. He was a member of the varsity football squad and won a block letter in that sport.

Immediately after his graduation, he opened a law office in Syracuse and practiced until 1905, when he became an employee of the J. P. Lewis Company in Beaver Falls. Two years later he was appointed state agent in Minnesota for D. C. Heath & Co., publishers of textbooks.

He was president and manager of the Pa-Pro Company, manufacturers of heavy paper shipping containers, at Lowville, several years. The company was sold to the Smith-Lewis Company of Lowville, and Mr. Cornwall went to Glenfield to become manager of a similar company. Last year he organized a paper container company in Utica.

Mr. Cornwall was one of the first trustees to be appointed to the board of the college of forestry, and had served continuously since the late Governor William Sulzer named him to the post. He was a member of Psi Upsilon fraternity and of the Varsity Block Letter Club.

Surviving are his widow, Mrs. Grace Lewis Cornwall; his father, Harvey Cornwall, of Alexandria Bay, and a brother, Dr. Leon Cornwall.

William Fessenden Merrill

William Fessenden Merrill, well known among paper manufacturers and paper jobbers died recently at his residence, 277 Park avenue, New York. Mr. Merrill, who was former president and general manager of Remington Rand, Inc., bought large amounts of paper for that concern. He was in his fifty-seventh year.

Mr. Merrill belonged to the Metropolitan Union League, Century, Transportation Clubs of New York City and the Saturn and Buffalo Athletic of Buffalo. He was a member of Psi Upsilon fraternity.

Dr. James E. Campbell

WATERTOWN, N. Y., October 15, 1933—Dr. James E. Campbell, paper manufacturer, died at home today after a heart attack. He was president of the Dexter Sulphite, Pulp and Paper Company of Dexter, N. Y., and the Westfield River Paper Company of Russell, Mass. He was 61 years old. A graduate of Yale, he practised medicine as a young man in New York City. He had been in the paper business for thirty years.

J. B. Clark

ST. CATHERINE, Ont., October 9, 1933.—J. B. Clark, a former leading citizen of Thorold, died in Glendale, California recently after years of service as an official of the Provincial Paper Company, Thorold, in California. He was a member of Thorold Town Council some time and a leader in Trinity Methodist Church, also a member of Mountain Masonic lodge. He was born in Stamford township 54 years ago. Four sons and two daughters survive.

Paper Code in Final Stages

WASHINGTON, D. C., October 18, 1933—The executive committee of the American Paper and Pulp Association met here yesterday with Deputy Administrator Pickard of the NRA and members of the Labor Advisory Board of that organization in connection with labor conditions in the paper code.

It had been anticipated that the paper code would have been signed by this time but the Labor Advisory Board did not believe that the wages were as high in the code as they should be. Therefore the meeting was held yesterday in executive session.

There is every indication, if it is impossible for the Labor Board to "see the light" that the code may go to General Johnson for approval without the endorsement of the Labor Board. It is expected that the code will reach its final stages late this week unless something unforeseen should arise.

Alleged Dumping of News Print

WASHINGTON, D. C., October 17, 1933.—Formal complaint has been filed with the Commissioner of Customs against the alleged dumping of news print at Atlantic and Gulf coast ports by the Powell River Paper Company of Powell River, B. C. The reputed sale price of the imported paper is $30 per ton delivered, as compared with the ruling price of $40 for domestic paper, a price also held to by the paper mills of Eastern Canada. This price, according to the complaint, would be equivalent to $24 at the mill, after deducting the freight charges. The complaint was filed in behalf of the United States news print producers.

International Raises Wages

The International Paper Company Tuesday announced that a maximum working week of forty hours has been made effective this week in all its mills in the United States. This action, the company stated, was taken in anticipation of the labor provisions proposed in the Code of the Pulp and Paper Industry. Over 5,000 employees are affected and about one thousand additional men will be given employment. Because of this reduction in hours of labor, an average increase of 12 per cent has been made in the hourly rate of wages.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Wellsburg, W. Va.—The S. George Company, Railroad street, manufacturer of paper bags, paper sacks, etc., has begun superstructure for new two-story addition to plant, 110x153 feet, estimated to cost about $90,000, with equipment. It is proposed to have the unit ready for occupancy by the close of the year. List of equipment to be installed has been arranged. General contract for structure was recently awarded to the Austin Company, Union Trust Building, Cleveland, Ohio.

Newark, N. J.—The Se-Ko Waste Material Company, recently organized to deal in paper waste, has leased a floor in industrial building at 292-96 Jeliff avenue, and will occupy at once for new storage and distributing plant.

Auburn, Me.—The Laganas Shoe Company, Lowell, Mass., has recently acquired mill property at Auburn, comprising five-story building of 100,000 square feet of floor space, and will occupy for new plant, removing present works to that location. Arrangements are being made for establishment of a paper box manufacturing plant at new location for production of cardboard boxes, etc., for company output. George Laganas is head.

Stamford, Conn.—The Stamford Wall Paper Company, Greenwich avenue, is said to have plans maturing for new one-story plant unit, estimated to cost approximately $40,000, with equipment. It is proposed to begin active work on structure at early date.

Glens Falls, N. Y.—The Imperial Paper and Color Corporation has developed a new line of washable wall papers, and plans extensive production schedule for a number of weeks to come, giving employment to sizable working force.

Knoxville, Tenn.—The Champion Fibre Company, Canton, N. C., has concluded negotiations for purchase of large tract of timber property at the Tennessee-North Carolina State line, Cocke County, and will develop in future for source of pulp wood supply for service at mill.

Cleveland, Ohio—The Kaplan Brothers Company is considering rebuilding of portion of paper storage and distributing plant, 2670 51st street, recently damaged by fire with loss estimated at close to $13,000.

De Pere, Wis.—The Nicolet Paper Corporation has active work under way on rebuilding of its dam in the Fox River, used for water service at the mill. Work will cost approximately $27,000, and is being carried by the C. R. Meyer and Sons Company, 50 State street, Oshkosh, which recently was awarded general contract.

New York, N. Y.—The Eastern Envelope Company 61 Greene street, manufacturer of commercial envelopes, etc., has removed to 75-77 Spring street, where floor in building recently was leased.

Marcus Hook, Pa.—Congoleum-Nairn, Inc., Kearny, N. J., manufacturer of hard surface coverings, has awarded general contract to the Turner Construction Company, Architects' Building, Philadelphia, Pa., for a new one-story addition to plant at Marcus Hook, to be equipped for laboratory and shop service. It is estimated to cost close to $25,000, with equipment. W. W. Lindsay and Company, Harrison Building, Philadelphia, are engineers.

Bridgeport, Conn.—The mill of the Tait and Sons Paper Company, idle for some time past, has been sold to the recently organized Bridgeport Brewing Company, and will be remodeled and occupied by purchasing company.

Chicago, Ill.—The Kaplan Envelope Company, Rockford, Ill., has taken over property at 2533 North Ashland avenue, Chicago, recently leased for a new paper converting plant, and will concentrate production at this location in the future. The property totals about 22,000 square feet of floor space and will provide for increase in former capacity at the Rockford plant.

Dayton, Ohio—The Johnson and Watson Printing Company, 160 North Jefferson street, operating a paper converting plant for manufacture of blank books and kindred products, plans early rebuilding of portion of building recently destroyed by fire, with loss estimated at close to $15,000.

Hantsport, N. S.—The Minas Basin Pulp and Paper Mills, Ltd., Windsor, N. S., is planning an expansion program at Hantsport mills, including construction of two or more new units, one to be used for enlargement in the ground wood pulp mills, where large increase in capacity will be carried out. The other unit will be used for the manufacture of a line of molded pulp specialties, a new division of the company. Entire project will cost close to $200,000, with equipment.

Cornwall, Ont.—Courtaulds (Canada), Ltd., Reford Building, Toronto, Ont., manufacturer of cellulose rayon products, has authorized an expansion and improvement program at plant at Cornwall, including construction of a new main two-story and basement mill, 150X500 feet, and smaller units. Increased capacity will be arranged in the pulp department. A battery of 32 new machines, with auxiliary equipment will be installed in new mill. General building contract has been let to the Foundation Company of Canada, Ltd., Toronto. Work is scheduled for completion in the spring, and is estimated to cost close to $2,500,000 with equipment.

Toronto, Ont.—The Hawk Lake Industries, Ltd., Toronto, is considering construction of a new mill for the production of pulp wood for paper mill service. Exact location has not been announced. New unit is reported to cost close to $50,000, with equipment.

New Companies

New York, N. Y.—The Phillips Envelope Company

has been incorporated with capital of 100 shares of stock, no par value, to manufacture envelopes and kindred paper products. New company is represented by Samuel B. and Bernard Pollak, 570 Seventh avenue, city, attorneys.

New York, N. Y.—The J. J. and E. N. Murphy Paper Corporation has been chartered with capital of 200 shares of stock, no par value, to deal in paper goods of various kinds. New company is represented by Jacob L. Holtzman, 40 Wall street, New York, attorney.

Cleveland, Ohio—The Progress Paper and Twine Company has been organized by R. M. MacDowell and associates, with capital of 150 shares of stock, no par value, to deal in paper goods of various kinds. New company is represented by J. Albert Lowell, 1344 Union Trust Building, city.

Cleveland, Ohio—The Felber Paper Umbrella Company has been incorporated with capital of 300 shares of stock by Leo Gannon and Samuel H. Katz, to manufacture special waterproof paper and other paper goods. New company is represented by Philip F. Weiss, 549 Leader Building, city.

New York, N. Y.—The Artcraft Envelope Company has been incorporated with capital of $20,000, to manufacture envelopes and kindred paper goods. New company is represented by Sidney Rothberg, 274 Madison avenue, an attorney.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 16, 1931—Sidney Wilder Bartlett, president and treasurer of the Baird & Bartlett Company, box board dealers, and president of the Tyer Rubber Company of Andover, Mass., and Mrs. Grace O. Whitten, of 192 Commonwealth avenue, Boston, were quietly married in that city October 7. Mrs. Bartlett was the widow of Charles O. Whitten, a friend of Mr. Bartlett for many years.

Champlain Text, a book paper, is being offered to the trade by the Storrs & Bement Company. This paper is a laid sheet in white and five colors, India, tan, blue, green and yellow.

The Natick Box and Board Company, Natick, Mass., is to be closed this week for repairs to the equipment.

A meeting was held at the office of John Carter and Company, Inc., October 7, in connection with the campaign for Eagle A L'Aiglon, a paper for distinctive advertising, manufactured by the American Writing Paper Company. Charles J. Foster, New England manager, and Edward H. Sussenguth, both of the Boston office of the American Writing Paper Company, presented the campaign.

J. F. Cooper, assistant treasurer of the D. F. Munroe Company, left Saturday for Chicago, where he will attend the Century of Progress Exposition.

Robert M. Stone, vice-president of Stone and Forsyth Company, spent last week in the White Mountains and Hanover, N. H., expecting to return today.

R. B. MacDougall, sales manager, and Gordon Blanchard, New York sales representative of the Collins Manufacturing Company, of Holyoke, Mass., called on the trade last week in connection with placing the new lines made by that concern.

T. Stewart Foster, president of the Foster Paper Company, Utica, N. Y., called on the trade last week.

The Standard Bag and Paper Company has been incorporated with a capitalization of $2,000. There are 20 shares of $100 each. The president is Albert Gould; treasurer, Frances Cohen, 50 Greendale road, Dorchester, and the third incorporator is Leon Aborn.

PAPER MACHINE CODE HEARD

(Continued from page 11)

statement to the hearing. He asked that the code be amended to provide for a maximum work week of 30 hours, divided into five 6-hour days. He said that the objectives of the recovery program cannot be attained without such a reduction in hours.

Mr. McGinn stated that he was "especially gratified to read" the section of the code maintaining wage differentials above the minimum, stating that he thought that "a similar provision should be in every code, stating the differentials previously existing for skilled workers over unskilled employees, should be maintained after the minimum rates of the lowest industrial groups have been increased."

He stated that he assumed that the code's jurisdiction "extends only to the manufacture of the products covered and ceases as to their installation." He explained that such installation work would be subject to the wage and hour provisions of the construction codes now in course of being drafted. At the conclusion of his remarks, Mr. Neese replied that the manufacturers of these machines provided only a skilled supervisor of installation, and that they had nothing to do with the actual work of putting the machines in factories.

R. S. Newham Files Brief

R. S. Newham, representing the metal trades department of the A. F. of L., and the International Association of Machinists, filed a brief with the Deputy, stating that it carried the same provisions asked for in regard to hearings on the machinery industries. The brief asked for a 30-hour week and a minimum wage of 45 cents an hour for factory workers and a minimum of $16 a week for office workers.

In reply to a question by Legal Adviser Ansell, Mr. Neese stated that the five per cent. limitation in section 3 of Article IV applies both to the class of office boys and girls and learners and superannuated or disabled employees. He later corrected himself upon consultation with his counsel, but made the statement that the number concerned would be so small that his original statement would stand.

Deputy Brady brought out the fact that Article VI composes the code authority with three members appointed by the Paper Machine Builders Association. He said that it would be possible that the occasion might arise when the majority of the association might withdraw and leave control of the code authority in the hands of a minority, which would be inequitable. He suggested that the code committee consult with the legal staff of NRA to work out this and other matters.

Those assisting Deputy Brady at the hearing were Industrial Adviser G. C. Barton, of Worcester, Mass.; Legal Adviser B. T. Ansell; Consumer Adviser, K. J. Houck; Research Adviser J. H. Hanley, and Labor Adviser Fred Hewitt.

Paul Wesco Joins Fox River

[FROM OUR REGULAR CORRESPONDENT]

Paul Wesco, formerly sales manager of The Tuttle Press Company, Appleton, Wis., has resigned to become associated with the Fox River Paper Company as sales representative.

The Fox River Paper Company, manufacturers of high grade rag content bonds and ledger papers, are celebrating their fiftieth anniversary. Their original corporation charter was issued to the Fox River Flour and Paper Company in 1883.

The Company sales offices are at 8 South Michigan avenue, Chicago, and 350 Madison avenue, New York City. Mills are at Appleton, Wis.

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FOREIGN COMPETITION UNDER THE NATIONAL RECOVERY ACT

The report of the Import Committee of the American Paper Industry for the year ending September 30, 1933, makes impressive reading. As a result of the Import Committee's operation for the past year 1028 cases were decided of which 750 cases involving increases in duties or penalties, or both, were won. The results reported, it is stated, are entirely due to the highly technical study that has been applied to these cases. This is certainly commendable and demonstrates in no uncertain way the great value of the Import Committee to the American Paper Industry.

A separate pamphlet issued in connection with the report by Warren B. Bullock, manager of the committee, draws serious attention to one of the vital problems of the future, namely, "Foreign competition under the National Industrial Recovery Act." Mr. Bullock asserts that foreign competition which would break down the efficacy of the National Industrial Recovery Act must be prevented. This vital fact is recognized by specific provision in the text of the Act.

The mere recognition of the menace of foreign competition in the text of the Act does not solve the problem.

The American Paper Industry must take its own measures to make the provisions of the Act effective and prevent the wrecking of the recovery program by unrestricted unfair foreign competition.

Domestic industry knows its own problems; it does not know the methods of foreign competitors who will, as they have in the past, seek to evade the provisions of law, neither does it know how to combat these efforts. To meet this situation requires experience and personnel trained in this highly specialized field. There is no time to experiment. The necessary facilities developed through nine years of successful operation in this precise field already exist in the Import Committee of the American Paper Industry.

Higher manufacturing costs will be forced by the operation of the National Industrial Recovery Act. Price increases, to permit a profit under this increased manufacturing burden would, without restriction of foreign competition, merely make our market more attractive to the foreign producers. Instead of bringing about domestic industrial recovery, the Act will, if foreign competition is unrestrained, serve to bring prosperity to foreign mills, with no benefit, if not actual damage, to the domestic manufacturers.

The Import Committee's part in this program will be most important. It must take action on three phases of the problem in order to make the Recovery Act effective as regards foreign competition:

1. Close cooperation with the Administrator of the Act in the formulation of methods and regulations by which foreign merchandise can be brought into line with that produced by domestic interests.

2. Assembling of data on foreign trade, in case of contemplated changes in existing rates, to be made available to:
   (a) The United States Tariff Commission
   (b) The Congress or The President, in case of changes by legislation or treaties.

3. Constant scrutiny of the importations of foreign paper and cooperation with the Bureau of Customs and the Department of Justice to make certain that the provisions of the Recovery Act for the checking for foreign competition are not evaded.

Each of the above steps involves placing at the disposal of the Government the great technical, marketing and legal facilities of the industry, thereby providing the necessary data on which any of the Government agencies can act as the occasion may require. This data can only be secured from the industry itself and must be presented by those conversant with the policies and practices of such Government departments.

With over 150 grades of paper recognized in the tariff laws, the task ahead would be staggering, were it not that the paper industry already has in the Import Committee an organization prepared to attack these problems without a moment's delay. The Import Committee has the technical experience which is essential. It knows importing practice, and the methods and procedure of the Government agencies. It has experts not only to collect, but also to analyze and interpret statistics for presentation to the proper authorities in accordance with the method prescribed in the Industry's Code of Fair Competition.

The Import Committee is the only organization in the United States now equipped to do this work. It is unique and alone in its field, and is recognized by industry and Governmental officials alike as an established and successful organization.

In order to work properly under the conditions which

will result from the National Industrial Recovery Act, the Import Committee is keeping abreast of all developments so that it can take the necessary steps to prevent the Paper Industry Code from being made futile by a foreign invasion of domestic markets.

It will readily be seen from the above outline that the National Industrial Recovery Act can not be made effective unless adequate precautions are taken to prevent the flooding of the domestic market with low priced foreign goods. These precautions are already being taken by the Import Committee, which, meanwhile, will continue with unabated vigor its efforts to check evasion of the existing tariff laws.

Fire Injures Black-Clawson Plant

DAYTON, Ohio, October 16, 1933—A fire loss amounting to $110,000, it is conservatively estimated, was sustained at the plant of the Black-Clawson Company, manufacturers of paper mill machinery, Hamilton, on the late afternoon of October 12.

A two-story brick and frame building 200 feet long and 150 feet wide built 75 years ago as the Snyder paper mill, was reduced to ruins. This structure was used as the pattern storage building and it contained hundreds of patterns and wooden flasks, many of them extremely valuable and difficult to replace, most of which were destroyed.

William Conlin, fire chief, stated that the blaze was believed to have been caused by sparks from the cupola of the Black-Clawson Company's plant, where workmen were pouring molten metal during the afternoon.

It was stated at the plant of the Black and Clawson Company Saturday that until Herman Kutter, president of the firm, arrives home from the East, no definite announcement will be made of plans toward rebuilding the pattern and flask warehouse.

It was said, however, that a new warehouse must be erected and until then temporary quarters must be sought for the housing of patterns, flasks and foundry supplies in some part of the shops.

The blaze will in no manner curtail production at the plant, it is announced. Other than the warehouse the fire did no appreciable damage to the concern.

Toronto Group Developing Sodium

TORONTO, Ont., October 16, 1933—Considerable interest is being displayed in Saskatchewan's sodium sulphate deposits. This mineral is used extensively in the pulp and paper industry. Until recently Canada imported more than 70,000 tons in different forms, valued at more than $750,000. Production in Saskatchewan has been growing from year to year. In 1922, 500 short tons were shipped. In 1933 the total exceeded 10,000 tons and by next spring this total may be doubled. Immediate erection of a sodium sulphate refining plant at Ingebright, 40 miles north of Maple Creek, where there is one of the largest deposits in Saskatchewan, has been announced by Metallics and Non-Metallics, Ltd., of Toronto. This plant will cost $150,000 and should be in operation in two months. It is claimed by the company that the Ingebright deposit is one of the largest in the world and contains 98.8 per cent, sodium on the surface. The deposit goes down 135 feet and it is estimated that there are between 25,000,000 and 50,000,000 tons. Thirty men will be employed when the plant opens. Production in Canada for home consumption requirements will affect imports from Germany and the State of Texas, mainly. Saskatchewan is the only province shipping from natural deposits.

Lake States Section of TAPPI Meets

The first fall meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry was held in the Conway Hotel, Appleton, Wis., on October 10. About 90 were present when Chairman R. J. LeRoux called the meeting to order.

ANTI-FRICTION UNITS

Two papers were presented by representatives of allied industries, following the custom of having one of a mechanical and the second of a technical nature. The first paper of the evening was presented by M. A. Buettell of the Dodge Mfg. Corp., Mishawaka, Ind., on the subject of "The Application of Anti-Friction Units in the Paper Industry." About ten years ago the demand for higher speeds in industry made the old babbit bearing obsolete, and turned attention to anti-friction bearings as a solution of the problem. Since then this type of bearing has evolved from the old direct mounted model that was assembled on the job, to the modern unit assembled, adjusted, and lubricated in the factory, and mounted by means of an adapting sleeve. There are now over 1800 types of stock bearings to meet the requirements of almost any set of conditions. Mr. Buettell described the main constructional features of the various types of bearings, and concluded by showing numerous pictures of bearings in service in paper mills, demonstrating the variety of types available and the widely different conditions under which they may be used.

ELECTRON TUBES

The second paper, "The Electron Tube in the Paper Industry," was delivered by A. J. Germain of the Westinghouse Electric and Mfg. Co., Chicago, Ill. Mr. Germain described the construction and action of photo and grid glow tubes. An exhibit showed many of the applications of these tubes, including, for the photo tube, grading size and color of the product, control of fly knives in paper bag manufacture, and operation of relays for a multitude of uses. For the grid glow tube demonstrations included intermittent controls for electrical equipment, and the strobo-glow apparatus for "stopping motion" to study running equipment. Using the grid glow tube as a control saves power, increases efficiency, and eliminates moving parts and the troubles associated with them. Both papers were followed by an open discussion.

The Lake States Section meets at the Conway Hotel, Appleton at 6 P. M. on the second Tuesday of each month, except during the summer. Any interested persons who can be present are cordially invited to attend.

American Writing Heads Tax List

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 17, 1933—The American Writing Paper Company, Inc., heads the list of heavy taxpayers this year as announced by the assessors. Its tax is $168,673, a reduction of $57,100 over last year, made possible by drastic cuts in salaries and expenditures of the city. A factor in this reduction was the work of the Holyoke Tax Payers Association during the presidency of Lafayette C. Reynolds of that company. Mr. Reynolds who is comptroller, resigned to act on matters concerning the NRA and the paper trade some months ago. The Holyoke Water Power Company pays a tax of $137,973 being third largest with reduction of a little over $50,000. The Chemical Paper Manufacturing Company had a tax reduction of about $19,000, this year's tax being $32,482 and the Whiting Paper Company pays a tax of $60,642, a reduction of a little over $18,000.

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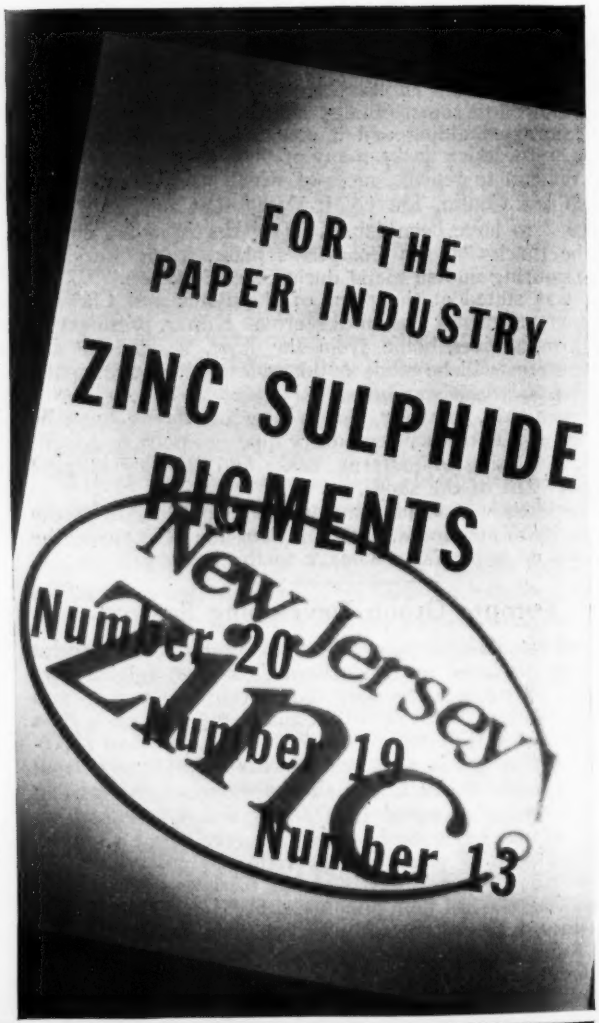

THE NEW JERSEY ZINC COMPANY

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Water Purification and Control*

By Frank R. Filz[1]

Abstract

A comparison is made of the "bottle test" method of control and pH control. It has been discovered that the optimum alum requirement is a linear function of the total solids of the raw water and a power function of the alkalinity of the raw water. The application of these relations as a method of control is discussed.

The Geo. W. Wheelwright Paper Company is located in North Leominster, Massachusetts, on the west bank of the North Branch of the Nashua River and is dependent upon this river for its supply of fresh water. This river is "formed in the town of Fitchburg by the union of Whitman and Nookagee rivers—flows northeastward 2 miles, then southeastward 14 miles to its junction with South Branch of Nashua River (tributary to the Merrimac) in Lancaster." *(1)* A dam at the mill causes the formation of a small pond from which the water is drawn for use. The water as it comes to the mill is usually somewhat polluted by wastes from manufacturers up the stream. Unfortunately no figures are available on the amount of this pollution but the type of pollution consists mainly of deinking wastes with possibly coating, dyeing, cloth-washing, and acid pickling wastes. Table I gives the analytical results of the limits of variation of the important constituents of this water. Unfortunately no routine determinations of the color and turbidity of the raw water are available so that the figures given for color, turbidity, and iron are isolated observations made at infrequent intervals. The pH and alkalinity, however, represent daily routine determinations made over a period of at least five years and the total solids over a period of a year and several months.

TABLE I

RAW WATER ANALYSIS

	pH	Alkalinity (as $CaCo_3$) PPM	Color	Turbidity	Iron (as Fe) PPM	Total Solids PPM 1932-33
High	8.4	220	..	5000*	...	1080
Low .....A.	6.4	3	20	0	...	20
Average	6.9	50	30	50	0.74	149

* Estimated. During the drought year of 1930 it was necessary to shut our plant down on two occasions when the suspended solids ran so high that the sedimentation basin was unable to take care of the large amount of floc formed, the floc sludge in a short time plugging the filters and making it impossible to filter the water.

Purification Process

The purification process consists of four stages, viz.; chlorination, treatment with alum, sedimentation, and filtration.

Chlorination

The raw water is chlorinated by means of a Wallace and Tiernan manual control vacuum feed chlorinator type MSV. This chlorinator was installed in October, 1925 and has given excellent service to date with a minimum amount of repairs.

Chlorination is controlled by testing water samples at the inlet of the basin every four hours for residual chlorine with ortho-tolidine using a LaMotte block comparator. A residual chlorine content of 0.6 ppm is maintained at this point which insures us a residual averaging 0.4 ppm in the filtered water as it is distributed to the mill. We experience absolutely no slime formation troubles.

Alum Feed

The raw water is treated with alum at practically the same time that it is chlorinated. The alum is fed by means of a regular hopper type dry feeder. Previous to 1931 the amount of alum being fed was controlled by means of colorimetrically determining the pH value of the water at a point shortly beyond the point of addition of the alum. Experiments previous to this time had indicated that a pH of from 5.8 to 6.0 in the basin after the addition of the alum would insure optimum coagulation. Experiments since then have indicated otherwise which will be shown later. Our present method is based on the well known "bottle test." Our bottle tests are made by adding a solution of alum to one quart samples of the raw water. The alum solution is made up to a concentration such that 1 cc. added to one quart of raw water corresponds to the addition of 100 pounds of dry alum to our basin in 24 hours. Four bottles are usually set up in steps corresponding to 50 pounds of alum and after a period of four hours the bottles are inspected for floc formation and our alum feed adjusted to correspond to the bottle which gives the best floc with the least amount of alum. Although this method has given excellent results a serious drawback is the time elapsed between readings. Means have been found to overcome this which will be discussed later.

Excellent agreement has been obtained for the optimum alum requirement between experiments made in the laboratory with liter samples and routine tests made in the plant. In the laboratory the progress of coagulation was observed by means of a Tyndall cone produced by projecting a focused beam of light from a carbon-arc stereopticon lantern through the beakers containing the water being treated.

Received June 28, 1933.
* Contribution of the TAPPI Waste Committee.
[1] Junior member TAPPI, chief chemist, Geo. W. Wheelwright Paper Company, N. Leominster, Mass.

Sedimentation Basin

Our sedimentation basin is 200 feet long, 36 feet wide and has an average depth of 6 feet. The time of sedimentation is approximately 3.4 hours. This basin was built in 1908 and except under extreme conditions operates quite efficiently. In May, 1930 a series of "round-the-end" baffles were installed at the inlet of the basin which insures maximum mixing of alum and chlorine with the raw water. A decided improvement in the character and size of the floc formed was noted after this installation.

Filter Plant

Our filter plant consists of seven Hyatt gravity sand type filters 10 feet in diameter with other necessary equipment. Our filtration rate is 2.87 gallons per square foot per minute and our daily water consumption is 2,275,000 gallons. Each filter is washed once every eight hours and time of washing is about one hour. It has been found that carelessness or inefficiency in washing will have an immediate deleterious effect on the quality of the filtered water, usually causing an increase in turbidity.

Results Obtained During Past Four Years

The following charts show the results of our purification control over a period of the last four years. Some very interesting conclusions and relations can be drawn therefrom. Fig. 1 gives the average pounds of alum consumed per day per month and the total precipitation (rainfall, etc.) per month in this vicinity. Fig. 2 gives the average pounds of chlorine consumed per day per month and the color and turbidity of the filtered water. Color *(2)* and turbidity *(3)* are determined according to American Public Health Association methods.

Discussion of Figs. 1 and 2

It will be observed from Fig. 1 that the amount of precipitation (rainfall, etc.) in this vicinity has a marked effect on the amount of alum required to obtain coagulation. The exact relation that exists in this connection has not been determined but from an inspection of Fig. 1 it appears that the amount of alum required is roughly inversely proportional to the rainfall. The seasonal effect of melting snow and ice is readily discernible from the rapid decline of the alum requirement during the spring of each year. August and September of 1930 were particularly dry months during a drought year and the effect of this scarcity of fresh water on alum requirement is apparent from an inspection of the curve during these months. It may be of interest in this connection to state that at this time we experimented with sodium aluminate in conjunction with alum as a coagulant. These experiments were based on a paper by Morse, Hechmer, and powell. *(4)* The turbidity of the filtered water decreased to 0 at this time as will be observed from Fig. 2. Excellent floc formation was obtained and it was possible to decrease our alum consumption somewhat but not sufficiently to warrant the continued use of sodium aluminate. Its use was discontinued during the early part of November, 1930.

The chlorine consumption curve in Fig. 2 is quite interesting, in that the trend of the curve has been downward

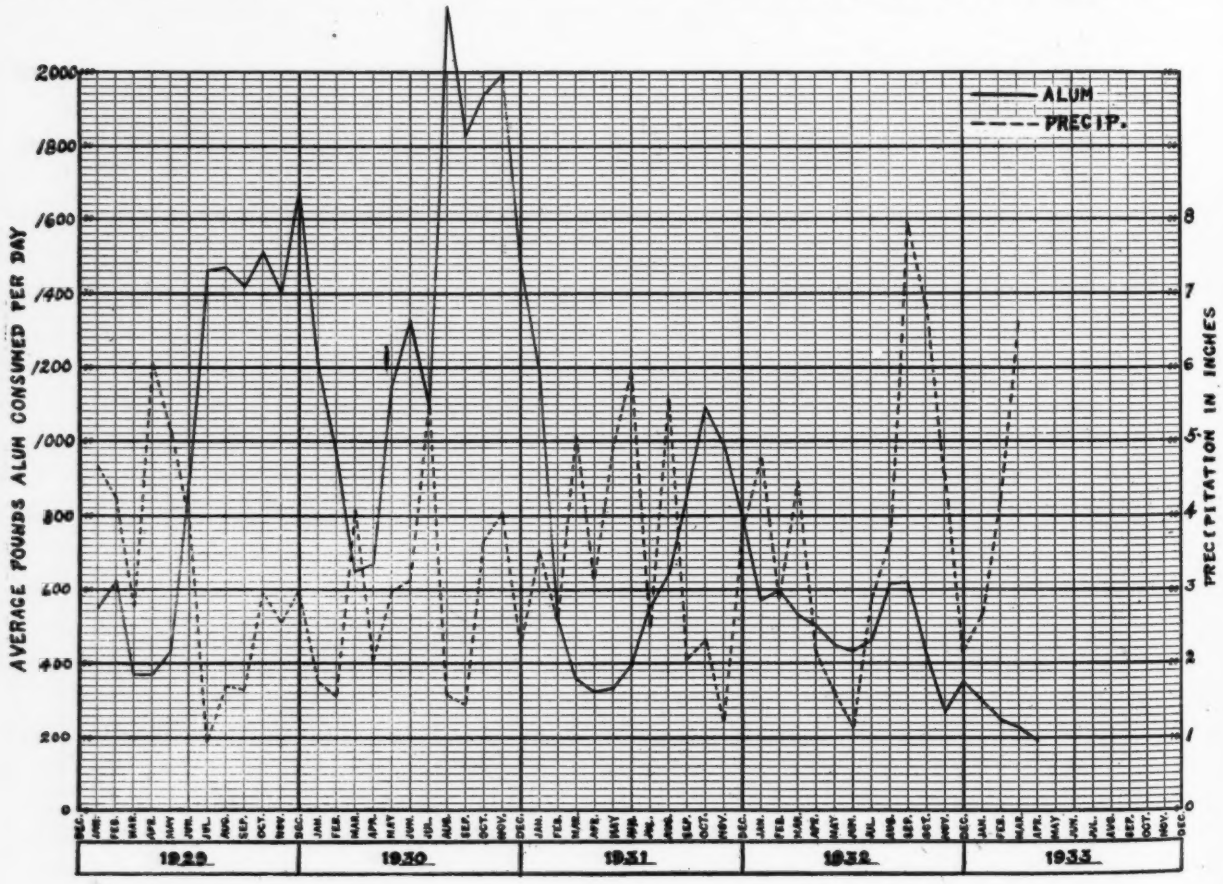

Fig. 1.

since the peak of 1929. This may be due to decreasing business activity above us on the river with consequent less waste discharged into the stream. The very marked decrease in 1932 is probably due to the heavy rainfall during August, September, and October. This is also the case with the alum consumption curve of Fig. 1. Of interest may be the fact that the immediate effect of a heavy rainfall is an increase in the alum and chlorine requirement which lasts but a short time. This is no doubt due to the surface clay and organic matter washed into the river during a storm. The ultimate effect of a heavy rainfall is a marked decrease in the alum and chlorine requirement. The reason for this will be made clear further on.

pH Control vs. Bottle Test Control

It was stated that previous to 1931 our alum rate had been controlled by maintaining a pH of 5.8 to 6.0 in the sedimentation basin. This pH is correct under certain conditions but its use at all times leads to a considerable waste of coagulant. The following figure will make this clear.

In Fig. 3 the pH of floc formation is plotted directly against optimum alum requirement as determined by the bottle test. It will be observed that the pH of floc formation varies over a rather wide range, in fact from pH 5.76 to pH 6.70. The attempt to control the pH at 5.9 necessitates the addition of more alum than is required to obtain optimum coagulation. An attempt was made to discover what relation exists between the pH of the raw water and the optimum alum requirement. Fig. 4 was obtained by plotting the pH of the raw water against the optimum alum requirement.

Attempts to reduce this curve to a mathematical equation have not been successful unless the curve EF is broken up into curves AB and CD. By plotting log y against log x a straight line is obtained for curve AB

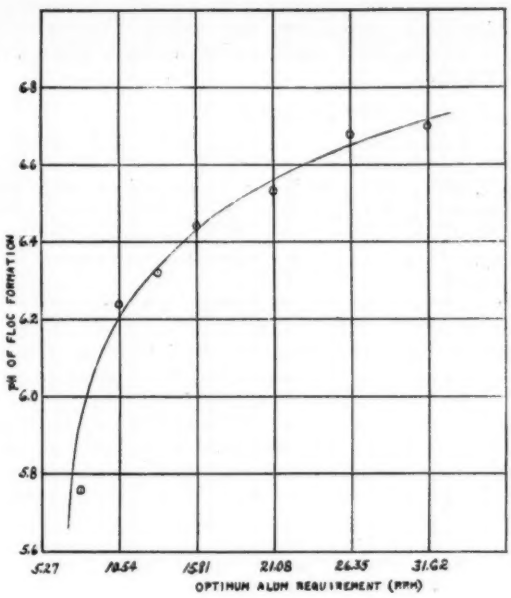

Fig. 3.

Relation of pH of Floc Formation to variation of optimum alum requirement.

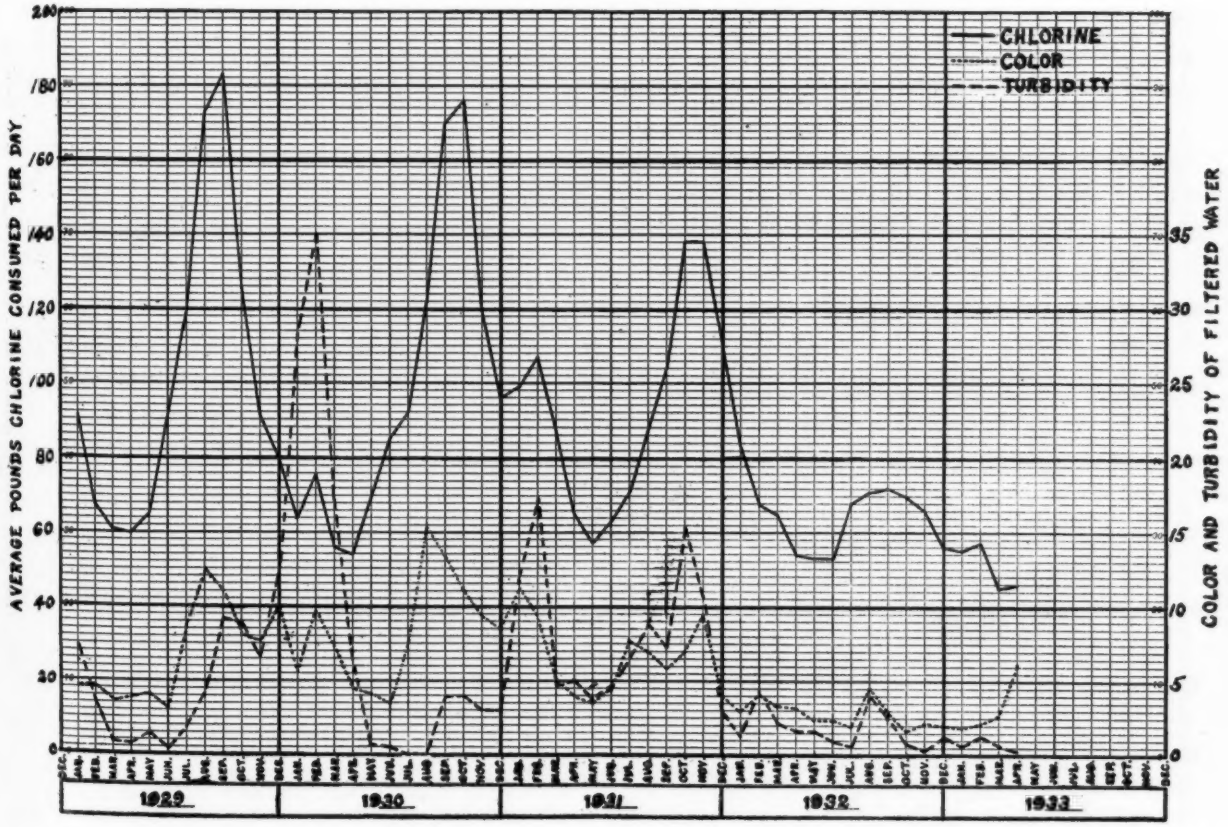

Fig. 2.

and by plotting log y against x a straight line is obtained for curve CD. These relations appear to possess little value as a prospective method of control of optimum alum requirement.

Efficiency of Two Methods

On the basis of total yearly rainfall it is possible to compare results obtained during the years 1929 and 1931. In 1929, using pH control, our alum requirement averaged 1,000 pounds per day. In 1931, using the bottle test method of control, our alum consumption averaged 680 pounds per day. This indicates a saving in alum consumption of 32 per cent by means of the bottle test method of control.

It would however, be unfair to use this figure as a proven saving as there are factors other than rainfall such as amount of pollution discharged into river above us, temperature of raw water, etc., which affect the optimum alum requirement. However, rainfall is probably the biggest factor and on this basis 1929 and 1931 are fairly comparable and it may be safely assumed that a saving of from 15 to 25 per cent in alum consumption has been made. Table II compares the results of using these two methods of control.

TABLE II

EFFICIENCY OF TREATMENT

	1929 (pH Control) Per cent of Time		1931 (Bottle Test Control) Per cent of Time	
	Color (5 or Less)	Turb. (0)	Color (5 or Less)	Turb. (0)
January	86	50	13*	48*
February	84	64	36	24
March	99	91	80	62
April	99	97	95	70
May	96	87	93	66
June	100	98	86	65
July	46	90	62	64
August	12	73	63	41
September	9	46	83	66
October	35	53	67	42
November	48	56	53	50
December	3	20	89	78
Average for Year	59.7%	68.7%	68.3%	56.3%
Overall Efficiency	64.2%		62.3%	

* Part pH Control and part Bottle Test Control. Bottle Test Control started January 23.

In Table II the percentage of time during each month of the two years has been calculated when the filtered water showed a color of 5 or less and a turbidity of 0. The author believes this to be an excellent criterion of the efficiency of our purification process. It will be observed from this table that the two methods give fairly close overall results. It may be of interest to state here that to date for the year 1933 we have been obtaining a color of 5 or less and a turbidity of 0, 85 per cent of the time. A study of the rainfall curve of Fig. 1 for this year makes the reason for this quite obvious.

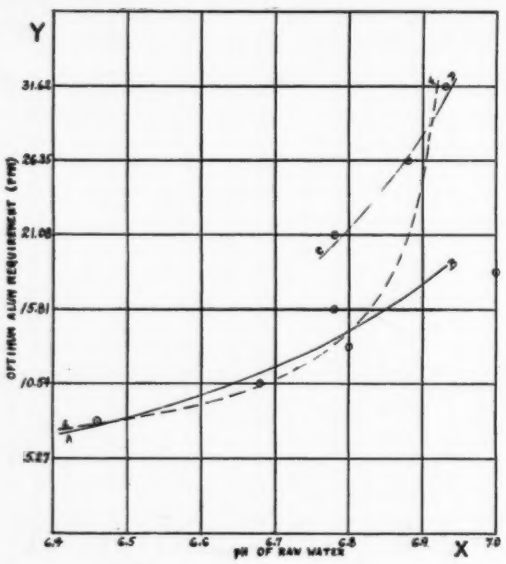

Fig. 4.

Relation between pH of raw water and optimum alum requirement.

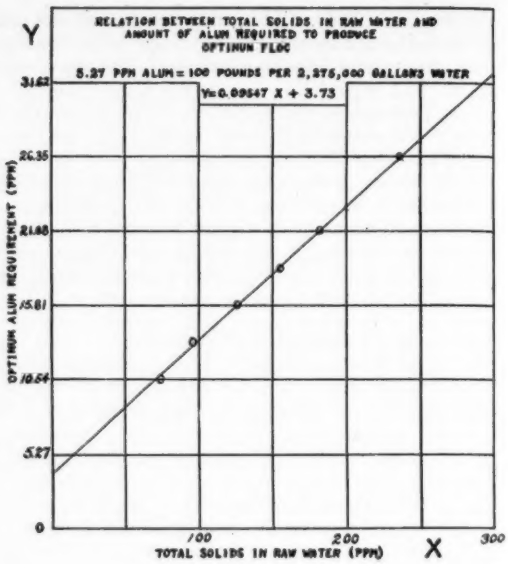

Fig. 5.

Mathematical Relations

During the past year some very interesting relations have been brought to light. One of these is that the optimum alum requirement is a linear function of the total solids of the raw water (between the limits determined). This relation may be expressed by the following equation:

$$Y = 0.09547\ X + 3.73 \quad \ldots\ldots (1)$$

where Y is the optimum alum requirement (in ppm) and X is to total solids of the raw water (in ppm).

The curve of this equation is shown in Fig. 5 and the accuracy of the equation in expressing the experimental data is given in Table III.

TABLE III

ACCURACY OF EQUATION (1) IN EXPRESSING RELATION BETWEEN OPTIMUM ALUM REQUIREMENT AND TOTAL SOLIDS IN RAW WATER

X	Y	$Y_{calc.}$	$Y - Y_{calc.}$
74.3	10.54	10.823	−0.283
96.1	13.175	12.904	+0.271
126.4	15.81	15.797	+0.013
155.0	18.445	18.527	−0.082
181.7	21.08	21.076	+0.004
236.1	26.35	26.270	+0.080
			+0.368
			−0.365
			+0.003

Another very interesting relation is that the alkalinity (as $CaCO_3$ in ppm) of the raw water and the optimum alum requirement. This relation (within the limits determined) may be expressed by the following equation:

$$Y = 3.4\ X^{0.48488} \quad \ldots\ldots (2)$$

where Y is the optimum alum requirement (in ppm) and X is the alkalinity, as $CaCO_3$ (in ppm) determined according to A.P.H.A. methods *(5)*.

A fairly close approximation to this formula for rapid work is:

$$Y = 3.4\sqrt{X}$$

The curve of equation (2) is shown in Fig. 6 and the accuracy of the equation in expressing the experimental data is given in Table IV.

TABLE IV
ACCURACY OF EQUATION (2) IN EXPRESSING RELATION BETWEEN OPTIMUM ALUM REQUIREMENT AND ALKALINITY (AS $CaCO_3$) IN RAW WATER

X	Y	$Y_{calc.}$	$Y - Y_{calc.}$
6	7.905	8.102	—0.197
11	10.540	10.866	—0.326
15.4	13.175	12.790	+0.385
24	15.810	15.857	—0.047
27.5	18.445	16.947	+1.498
46.1	21.080	21.757	—0.677
71.5	26.350	26.790	—0.440
113.0	31.620	33.597	—1.977
			—3.664
			+1.883
			—1.781

The relation between total solids in the raw water and the alkalinity of the raw water is shown in Fig. 7.

Present Control

Our present method of control is based upon equation (2) in combination with the bottle test as a check. Equation (2) has been chosen because of the ease of determining the alkalinity and the comparatively greater accuracy of a single determination than that obtained by using equation (1). As only a 100-cc. sample is used in determining the total solids, an error of 1 mg. in weighing will cause an error of 10 ppm in total solids. Also, it takes but a few minutes to make an alkalinity titration against several hours for a total solids determination. Table V gives the comparative results of equations (1) and (2) and the bottle test.

TABLE V
AGREEMENT BETWEEN THEORY AND ACTUAL OPERATION

Date 1933	Pounds Alum Required in 24 Hours According to Equation (1)	Pounds Alum Required in 24 Hours According to Equation (2)	Pounds Alum Required in 24 Hours According to Bottle Test
2/16	324	275	250 ± 25
2/17	270	294	250 ± 25
2/22	126	165	200 ± 25
2/23	251	254	250 ± 25
2/24	153	206	200 ± 25
3/ 9	215	153	200 ± 25
3/10	215	187	200 ± 25
3/11	153	187	200 ± 25
3/16	215	261	200 ± 25
3/18	163	176	200 ± 25
Average	208.5	215.8	215

Work is being continued in this laboratory on the collection of data as opportunity presents itself with the purpose in view of: (a) extending the usefulness of equations (1) and (2) so as to include higher concentrations of total solids and alkalinities in the raw water; (b) finding what relations, if any, exist between dissolved solids in the raw water and the optimum alum requirement, and (c) investigation of the factors affecting chlorine consumption.

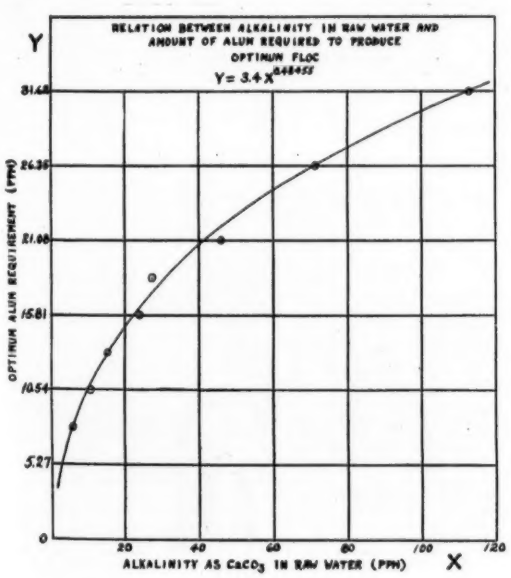

FIG. 6.

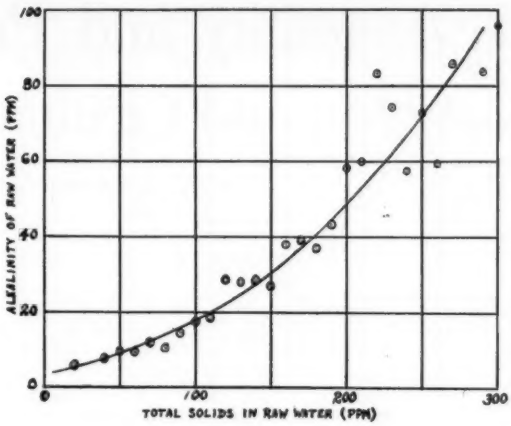

FIG. 7.

Relation between total solids and alkalinity in raw water.

Conclusions

1. Basic relations of floc-formation have been discovered which are of specific value in the control of the purification of our water supply.

2. The "optimum pH" of floc-formation possess limited value as a method of control because of its variability, at least as far as our water supply is concerned.

Acknowledgment

The author is indebted to Geo. W. Wheelwright, president of the Geo. W. Wheelwright Paper Company for permission to publish this paper; H. B. Allen, Chief Chemist at the Fitchburg Sewage Disposal Plant and U. S. Govt. Weather Observer for this district for the data on precipitation; M. LaBelle formerly research chemist with this concern for valuable suggestions relative to the use of the bottle test as a method of control; also H. T. McCrann, formerly assistant chemist in this laboratory and L. P. Tisdale, present assistant chemist in this laboratory for performing much of the routine work connected with this research.

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(2) American Public Health Association, "Standard Methods of Water Analysis," 5th Ed., page 8 (1923).
(3) American Public Health Association, "Standard Methods of Water Analysis," 5th Ed., page 4, Method 1 (1923).
(4) Morse, R. B., Hechmer, C. A., and Powell, S. T., Ind. Eng. Chem. 20, 56-59 (1928).
(5) American Public Health Association, "Standard Methods of Water Analysis," 5th Ed., page 33, Method 3(c) (1923).

Five Day Week Considered

HOLYOKE, Mass., October 17, 1933—The possibility of a five day week in the Holyoke paper mills was forecast in a statement issued this past week by Sidney L. Willson, President of the American Writing Paper Company, Inc. He said: "At a conference of the executives of the American Writing Paper Company, Inc., held this morning, the question of establishing a five-day week was given serious consideration. The benefits to labor and in effectuating the policies of the NRA were the main factors considered, and should such action be taken, it will probably be put into effect at the time of the approval of the Paper Industry Code of Fair Competition, and apply to the entire organization in its offices and mills."

Serviceability and Processing Effects of Oval Cast Iron and Circular Steel Rods in a Rod Mill

By C. E. Hrubesky[1], P. S. Billington[2], and P. K. Baird[3]

Abstract

Rod mill charges of oval cast iron and of circular steel rods, approximately equal in number, weight and longitudinal area, are compared with respect to their serviceability and milling effects on kraft pulp at 4 and at 8 per cent consistences at a constant speed of rotation of the mill. With one exception, the usual physical tests made upon the pulps develop more rapidly and attain higher maximum values by the use of circular rods at each consistence than when milled with the oval rods. This one exception is the development of tearing strength at 4 per cent consistence, which is greater with the oval than with the circular rods. The power consumption required to reach a definite bursting strength factor (0.6 points per pound per ream) is approximately one-fourth less at the 8 per cent consistence and one-twentieth less at 4 per cent consistence, with the circular than with the oval rods.

The oval rods appear to exert a pounding action rather than the rubbing or rolling action exerted by the circular rods. In spite of this, the oval rods appeared to be as resistant against chipping and fracture as the circular rods.

The purpose of the experiments reported here was to compare the serviceability and processing effects obtained by the use of charges of circular steel rods and of oval cast iron rods in a rod mill.

Apparatus, Materials, and Procedure

Apparatus

The rod mill used in this study was the semicommercial mill shown in Fig. 1. It is 3 feet in diameter, 5 feet long (inside measure), rubber lined, and can be rotated at speeds varying from 17 to 34 r.p.m. The equivalent of 25 pounds of oven-dry pulp, used at 4 to 8 per cent consistence, has been found to be the optimum charge for processing in this mill. The mill can be run continuously or batchwise. When operated continuously pulp and water are introduced by a screw feeding device through one trunnion of the mill, the milled pulp flowing out through the opposite trunnion; sufficient water is fed in with the material to form a pulp suspension of the desired consistence. When operated batchwise, the material to be milled together with the proper quantity of water to give the desired consistence, is added through a man-hole in the side of the mill. At the completon of a batchwise operation the man-hole cover is removed and the mill contents dumped into a screen where the pulp is permitted to drain.

The assortment and weights of the circular steel rods used are shown in Table I. The full charge of 47 rods had a total weight of 3,336 pounds and a total longitudinal surface area of 134.7 square feet.

The oval cast iron rods were identical, each having a length of 58 inches, and minor and major axes of 2 and 3 1/6 inches, respectively. Their average weight was 73 pounds and their average longitudinal area 3.24 square feet. In order to duplicate as nearly as possible the charge of circular rods in number, weight, and longitudinal area, 46 oval rods, having a total weight of 3,358 pounds and a total longitudinal area of 149 square feet were used for the charge. Before determining the processing effect of these rods, they were "broken in" by rotating in the mill for 3 hours at 27 r.p.m. with kraft pulp at about 2 per cent consistence.

TABLE I
DATA ON CIRCULAR STEEL ROD CHARGE

Rods, number	Diameter, inches	Length, inches	Total weight, pounds	Total longitudinal area, sq. in.
7	1.5	58	245	1912
17	2.0	58	850	6210
10	2.5	58	785	4555
13	3.0	58	1456	6710

Procedure

A preliminary run was made to determine the serviceability of the rods. Six of the cast iron oval rods were put into the mill together with a full charge (37 rods having a total weight of 3,660 pounds) of circular bronze rods and 25 pounds (oven-dry) of sulphite pulp at 4 per cent consistence. The mill was then run for 15 hours. The rods were inspected at intervals during the run for chipping and fracture, and at the end of the run, the oval rods were found to have endured the action with no more noticeable detrimental effects than are found with other rods, namely a slight chipping at the ends.

The processing conditions of the four subsequent runs made with a commercial kraft pulp and with the circular steel and oval cast iron rods are shown in Table II.

TABLE II
DATA ON PROCESSING CONDITIONS

	Rods used			Pulp *		
Rod mill run No.	Shape	Total weight, pounds	Total rod longitudinal area, sq. ft.	Consistence, per cent	Ratio rods to oven-dry pulp, by weight	Ratio rods to total charge of pulp and water, by weight
49	Circular	3336	134.7	8	133.4 :1	10.67 :1
50	Circular	3336	134.7	4	133.4 :1	5.34 :1
52	Oval	3358	149.0	8	134.3 :1	10.75 :1
53	Oval	3358	149.0	4	134.3 :1	5.38 :1

* 25 pounds pulp (oven-dry basis) used for all runs.

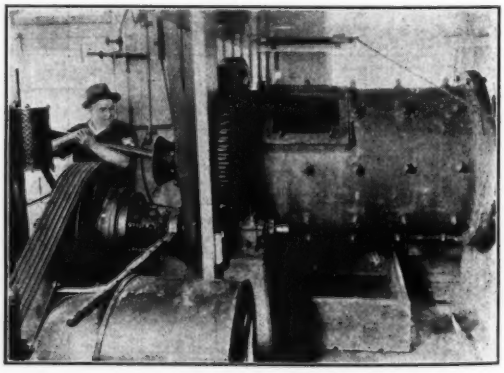

FIG. 1.
The semicommercial rod mill.

RECEIVED AUGUST 25, 1933.
* Presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Appleton, Wis., September 26-28, 1933.
[1] Member TAPPI, asst. chemist, Forest Products Laboratory, Forest Service, U. S. Dept. of Agriculture, Madison, Wis.
[2] Assoc. member TAPPI, junior chemist, Forest Products Laboratory.
[3] Member TAPPI, senior chemist, Forest Products Laboratory.

At 15-minute intervals during each of the four subsequent runs, samples of pulp were removed for physical tests and the power consumption, as recorded by a watt-hour meter, was noted. Milling was continued until the bursting strength of the pulp reached a maximum and began to decrease. The test results and power consumption are shown in the accompanying tables and figures.

Discussion of Results

The influence of the oval and circular rods upon the rate of hydration and the cutting of the pulp fibers was evaluated by means of the customary strength tests on sheets of processed pulp, the freeness test, and a rate of flow test *(1)*.

In making the tests several factors believed to affect the rate of hydration were studied and their bearing on the results are discussed here.

Heat Developed by Milling and Its Effects

The changes in temperature produced in the mill are shown in Table III and Fig. 2. In run No. 49, the bursting strength of the pulp determined by the pebble mill method No. 98 *(1)* showed a decrease after 90 minutes milling. Accordingly the mill was stopped, a test sample was obtained and the pulp allowed to cool over night. The following morning another test sample was removed and the processing continued to determine whether or not cooling appreciably affected the processing effects with consequent influence on the freeness and various strength properties.

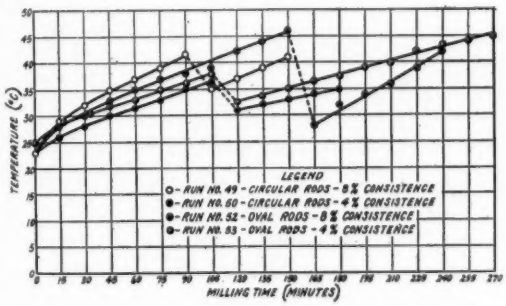
TEMPERATURE (°C)
MILLING TIME (MINUTES)
LEGEND
O- RUN NO. 49 - CIRCULAR RODS - 8% CONSISTENCE
●- RUN NO. 50 - CIRCULAR RODS - 4% CONSISTENCE
●- RUN NO. 52 - OVAL RODS - 8% CONSISTENCE
O- RUN NO. 53 - OVAL RODS - 4% CONSISTENCE

FIG. 2.
The relation between milling time and heat developed in rod mill.

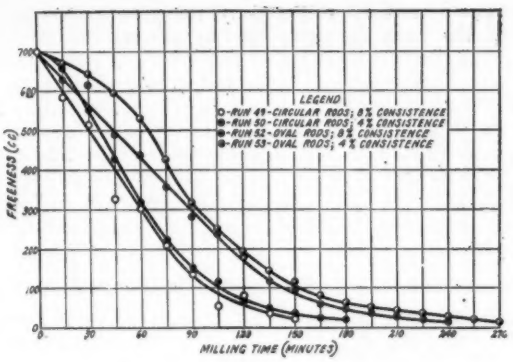

FIG. 3.
The relation between milling time and freeness of pulps.

In each of the other runs the mill was stopped at the end of definite times of milling and the contents allowed to cool over night. The next morning processing was continued until the constant *b* of the flow rate test *(1)* showed a decrease with continued milling. Thus, run No. 52 (oval rods at 8 per cent consistence) was stopped for the night after 150 minutes milling when the Green freeness of the pulp was approximately equal to that of run No. 49 (circular rods at 8 per cent consistence), when the latter was stopped. Runs No. 50 (circular rods at 4 per cent consistence) and No. 53 (oval rods at 4 per cent consistence) were stopped for the night after equal periods of milling rather than after the development of equal freeness values. The time of stopping, however, was taken at the point where the freeness value of the pulp from run No. 50 was approximately equal to that from run No. 49 when the latter was stopped.

Physical tests made on the samples removed from the mill after stopping for the night and just before starting in the morning showed no changes in the constants of the various stuffs.

From these data it is apparent that in run No. 49 using circular rods on the pulp at 8 per cent consistence the rate of temperature rise is very slightly greater than in run No. 52 with the oval rods under similar conditions. At 4 per cent consistence the rates of temperature rise with the circular and oval rods, as shown in the curves

TABLE III—DATA ON PROCESSING EFFECTS OF CIRCULAR STEEL AND OVAL CAST IRON RODS IN A ROD MILL

Processing Variable	Rod Mill Run No.	Milling Time (Minutes) 0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
Temperature Deg. C.	49	23.0	29.0	32.0	35.0	37.0	39.0	41.5	35.0	37.0	39.0	41.0	...	...	...	...	...	...	...	...
	50	23.0	26.0	28.0	30.0	31.5	33.0	35.0	36.5	31.0	32.0	33.0	34.0	35.0	...	...	...	...	...	...
	52	23.0	28.0	30.0	33.0	35.0	37.0	38.0	39.0	42.0	44.0	46.0	28.0	32.0	34.0	36.0	39.0	42.0	...	...
	53	25.0	28.5	30.0	32.0	33.0	35.0	36.0	38.0	32.5	34.0	35.0	36.5	37.5	39.0	40.0	42.0	43.0	44.0	45.0
Freeness (Green) cc.	49	700	590	515	328	303	212	135	58	83	38	25	..	..	..	..	..	..	..	..
	50	706	662	556	430	315	227	156	115	65	50	34	27	24	..	..	..	..	..	..
	52	698	630	615	486	439	357	285	238	181	120	98	66	50	40	29	26	18	..	..
	53	708	670	644	596	532	426	316	250	191	146	116	88	65	55	46	38	30	22	19
Flow rate Hydration (Constant *b*)	* 49	**	**	.007	.015	.050	.125	.235	.250	.370	1.00	.590	...	...	...	...	...	...	...	...
	50	**	**	**	**	.020	.033	.127	.175	.192	.285	.180	.185	.167	...	...	...	...	...	...
	52	**	**	.007	.010	.015	.053	.083	.125	.223	.243	.455	.400	.400	.370	...	...	...	...	...
	53	**	**	**	**	.015	.025	.045	.055	.065	.082	.087	.113	.204	.214	.305	.223	.160	.350	.625
(Ashcroft) Bursting Strength Pt./lb./rm.	49	.10	.52	.52	.58	.62	.68	.71	.78	.80	.77	.80	..	..	..	..	..	..	..	..
	50	.05	.23	.39	.48	.49	.55	.57	.58	.57	.60	.58	.65	.66	..	..	..	..	..	..
	52	.11	.34	.43	.53	.58	.62	.65	.65	.63	.57	.65	.72	.69	.68	.62	.55	.50	..	..
	53	.07	.18	.29	.33	.47	.52	.51	.56	.58	.60	.62	.61	.60	.62	.57	.57	.54	.52	.50
Folding Endurance (Schopper) Dble. folds	49	..	42	35	75	178	148	120	302	316	284	360	...	...	...	...	...	...	...	...
	50	..	6	7	14	15	23	21	25	29	42	45	176	142	..	..	..	..	..	..
	52	..	4	16	26	42	94	28	58	147	103	30	85	78	46	50	20	15	..	..
	53	..	3	4	5	14	18	16	23	22	30	23	25	23	30	28	31	25	25	19
Tearing Strength (Elmendorf) Gms./lb./rm.	49	1.00	2.15	2.11	2.00	2.05	2.02	1.90	1.75	1.75	1.63	1.54	...	...	...	...	...	...	...	...
	50	1.10	1.46	1.49	1.30	1.28	1.23	1.39	1.26	1.28	1.15	1.06	1.22	1.07	...	...	...	...	...	...
	52	.67	1.49	1.81	1.72	1.79	1.90	1.82	1.79	1.62	1.62	1.45	1.47	1.37	1.29	1.44	1.38	1.15	...	...
	53	.73	1.63	1.54	1.72	1.80	1.75	1.57	1.51	1.48	1.41	1.48	1.38	1.41	1.26	1.22	1.24	1.23	1.25	1.11

* In equation $T + c = A \times 10^b$. T = flow time, R = rate of flow of water under constant head and temperature through a mat of pulp at time T, and A, b and c are constants dependent upon pulp properties. b is proportional to the transverse strength of the pressed and dried mat.

** Pulp too free for particular apparatus set up at time of test.

for runs 50 and 53, respectively, are practically equal. In all of the runs the temperatures at any definite period of milling up to 90 minutes fall within a range of 7 degrees. The divergence just noted appears in the runs at 8 per cent consistence after 90 minutes milling. Since the rates of freeness change and strength development (Figs. 3 and 5) do not increase in run No. 52 over run No. 49 after 90 minutes milling, and do not remain equal in run Nos. 50 and 53, it is apparent that temperature within the limits studied does not have much influence on the processing effects.

Fiber Properties As Indicated By Freeness (Green)

The freeness values of the rod-milled pulp shown in Table 3 and Fig. 3 indicate that the variations in temperature had no effect upon the rate of change of freeness in any of the runs. The freeness is decreased much more rapidly by the circular rods at both consistences than by the oval rods. With either type of rods the freeness values for the low consistence runs are slightly greater than those for the high consistence, at the same time of milling.

At 4 per cent consistence both types of rods, and more especially the oval rods, show an initial period when the freeness decreases but slowly. This period may be required for a homogeneous mixing of the pulp and water before hydration begins. After this initial period, the rate of decrease of freeness at 4 per cent consistence is greater than at 8 per cent consistence, with both types of rods, until a freeness of about 350 cc. is reached; thereafter the freeness curves for either type of rod at low and at high consistence become parallel.

Hydrogen-ion Concentrations During Processings

The pH of the samples taken from the various runs was determined colorimetrically by means of suitable indicators and prepared color standards. All of the samples showed a constant pH of 8.6, which is the value representative of the water used.

Hydration of Stuffs

The Forest Products Laboratory rate of flow test *(2)* was used for the measurement of hydration effects. This method is based upon the change of the rate of flow of water through a uniform mat of pulp under constant head and temperature. The change of flow rate, R, with time, T, is expressed by the equation $T + c = A \times 10^{bR}$ in which A, b and c are constants characterizing the pulp *(2)*. From the determination of the modulus of transverse strength of pressed and dried mats of pulp, it has been found that the values obtained are mathematically related to the constant b. Further, it appears that hydration of pulps is the main factor affecting the modulus of transverse strength. It can be concluded therefore that the degree of hydration can be related to values of b.

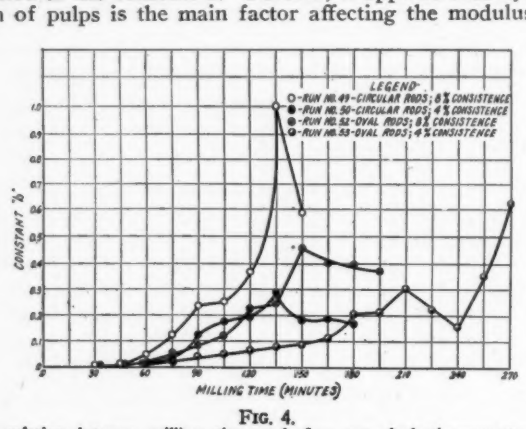
LEGEND
O-RUN NO. 49-CIRCULAR RODS; 8% CONSISTENCE
●-RUN NO. 50-CIRCULAR RODS; 4% CONSISTENCE
●-RUN NO. 52-OVAL RODS; 8% CONSISTENCE
●-RUN NO. 53-OVAL RODS; 4% CONSISTENCE
CONSTANT "b"
MILLING TIME (MINUTES)

FIG. 4.
The relation between milling time and flow rate hydration—constant b.

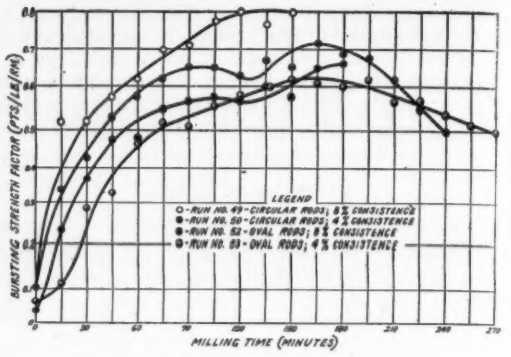
LEGEND
O-RUN NO. 49-CIRCULAR RODS; 8% CONSISTENCE
●-RUN NO. 50-CIRCULAR RODS; 4% CONSISTENCE
●-RUN NO. 52-OVAL RODS; 8% CONSISTENCE
●-RUN NO. 53-OVAL RODS; 4% CONSISTENCE
BURSTING STRENGTH FACTOR (PTS/LB/RM)
MILLING TIME (MINUTES)

FIG. 5.
The relation between milling time and Ashcroft bursting strength values of test sheets made from stuffs.

The data presented in Table III and Fig. 4 show the relationships between milling time and the values of b from the rate of flow equation. In run No. 49 using the circular rods on pulp at 8 per cent consistence the hydration as shown by the values of b develop at a markedly greater rate and reaches a higher maximum than in the other three runs. The rates of hydration in runs No. 50 and No. 52 using circular rods on pulp at 4 per cent consistence and oval rods on pulp at 8 per cent consistence, respectively, are practically equal, but as might be expected, the maximum reached is higher in run No. 52 because of the higher consistence. As shown in run No. 53, the oval rods on pulp at 4 per cent consistence produced a very slow hydrating effect, as measured by this method.

A peculiar effect in this latter run is found in the two maximums obtained. At 210 minutes the value of b reaches a maximum after which it has a straight line drop for one-half hour more milling. At 240 minutes the value of b again begins to increase and continues to do so until the end of the run at 270 minutes. It is probable that the effect of the rods in this case is analogous to the action of the beater on some pulps which develop two maximum bursting strength values during beating.

In each run there is a horizontal break in the milling time. In runs No. 49 and 50 these breaks occur at the periods when the mill was cooled overnight, which led at first to the belief that the cooling affected the rate of flow relationship. However, since similar breaks occur in runs No. 52 and 53 within the same narrow limits of b, the first 30 minutes before stopping the mill, and the second 75 minutes after starting the mill the next morning, it appears that a marked change took place in the pulp at this stage in processing. The cause of this behavior is left for future investigation. It plainly is not connected with the type of rod used.

Ashcroft Bursting Strength Properties

The bursting strengths of test sheets prepared from the pulps are shown in Table 3 and Fig. 5. The rate of strength development is greatest in run No. 49 followed in decreasing order by runs 52, 50, and 53, respectively. The maximum strength developed is likewise in the same order.

In runs 52 using the oval rods on pulp at 8 per cent consistence, there are two distinct maximums, the highest of which is considerably below the maximum developed in run 49 with the circular rods at the same consistence. The same holds true for run No. 50.

Up to 75 minutes milling time, the circular rods at 4 per cent consistence effect a greater rate of strength development than the oval rods, after which the strength remains about constant for one hour. Thereafter the strength again increases gradually until the end of the run. During the interval of little change in the values in this run, the strength producing properties of the pulp in run No. 53 (oval rods) slightly exceeds that of the pulp in run No. 50 (circular rods). However, the maximum reached in run No. 53 is below that reached in run No. 50 after its final increase.

Schopper Folding Endurance Properties

From Table III and Fig. 6 it is apparent that the rate of development as well as the maximum folding endurance is greatest in run No. 49 using the circular rods at 8 per cent consistence. The comparison of run No. 52 (oval rods, 8 per cent consistence) and run no. 50 (circular rods, 4 per cent consistence) is of interest. The rate of folding endurance development in run No. 52 was much more rapid than in run No. 50 and the maximum is reached sooner, but this maximum is lower than that reached eventually with the circular rods at the lower consistence. Run No. 53 using the oval rods on pulp at the lower consistence shows a very low maximum strength.

Apparently the consistence of the charge is the controlling factor in this effect because at 8 per cent consistence there are steep rises in the milling time-folding endurance curves. This has also been observed in industrial studies. All of the points do not lie on the curves so well as in some of the other tests but this is due to the fact that the folding test is very much influenced by the nonuniformity of the test sheets, and that highly uniform test sheets are difficult to produce.

Elmendorf Tearing Strength Properties

In tearing strength the test sheets made from the stuffs of run No. 48 (circular rods, 8 per cent consistence) again show a faster rate of development as well as a higher maximum than any of the others; this is shown in Table III and Fig. 7. In all of the runs the tearing strength reaches a maximum value within a very short time (15 to 80 minutes) and then falls off with continued milling. The small increases in the strength values near the end of run Nos. 52 and 53, although included as part of the curves, are probably due to nonuniform test sheets; definite secondary tearing strength maximums are, however, sometimes obtained in tests on beaten stocks.

The tearing strength values of the test sheets made from stuffs prepared at 4 per cent consistence in run No. 53 are considerably higher than those representing

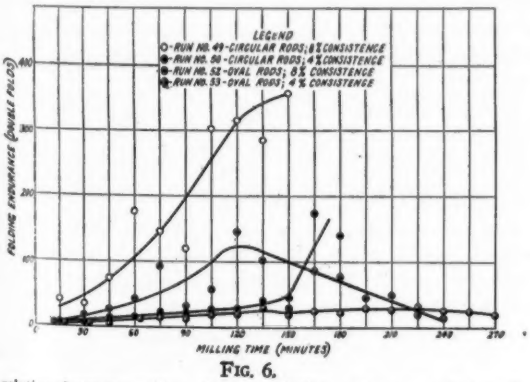
LEGEND
O-RUN NO. 49-CIRCULAR RODS; 8% CONSISTENCE
●-RUN NO. 50-CIRCULAR RODS; 4% CONSISTENCE
⊖-RUN NO. 52-OVAL RODS; 8% CONSISTENCE
⊕-RUN NO. 53-OVAL RODS; 4% CONSISTENCE
FOLDING ENDURANCE (DOUBLE FOLDS)
MILLING TIME (MINUTES)

FIG. 6.

The relation between milling time and folding endurance of test sheets made from stuffs.

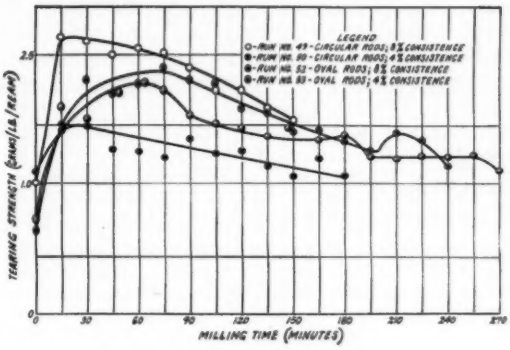
LEGEND
O-RUN NO. 49-CIRCULAR RODS; 8% CONSISTENCE
●-RUN NO. 50-CIRCULAR RODS; 4% CONSISTENCE
⊖-RUN NO. 52-OVAL RODS; 8% CONSISTENCE
⊕-RUN NO. 53-OVAL RODS; 4% CONSISTENCE
TEARING STRENGTH (GRAMS/LB./REAM)
MILLING TIME (MINUTES)

FIG. 7.

The relation between milling time and Elmendorf tearing strength values of test sheets made from stuffs.

run No. 50 (oval rods, 8 per cent consistence). This is the only case in which the oval rods show any superiority in processing efficiency over the circular rods. The reason for the oval rods being superior in developing tearing strength properties at low consistence and inferior at 8 per cent consistence is the way the two types of rods fall as the mill rotates.

Falling of Rods

The trunnions at both ends of the mill were opened so that the action of the two types of rods could be observed in milling pulps at different consistences and at different rotational speeds of the mill.

The oval rods had a tendency to pile up on the interior rising wall of the mill until a certain height was reached, whereupon the several top rods would fall or cascade as a unit to the bottom of the mill. As the speed of the mill and the consistence were increased the height to which the rods were elevated before falling was increased accordingly.

The circular rods appeared to roll or slide more easily over one another and along the interior wall of the mill, so that there was comparatively less piling up and cascading of the rods.

The effects of changes in speed, and consistence of the pulp on the piling up of the rods are shown in Table IV. The cascading angle is defined as the average angle which the exposed surface of the rods in the mill would make with the horizontal. This angle was determined by observation through the end of the mill, using the average height of the rods against the wall of the mill and the horizontal plane. Although the values given in the table are only approximate they do show the relative piling up of the rods under different conditions.

From the results it is evident that, since the oval rods are carried higher in the mill and tend to fall rather than to roll upon one another, they produce a pounding rather than a rubbing or rolling action which is characteristic of the circular rods. This difference in action becomes more pronounced as the consistence is lowered. It is undoubtedly this pounding action which causes the pulp at

TABLE IV

DATA ON THE CASCADING OF OVAL AND CIRCULAR RODS IN THE ROD MILL AS AFFECTED BY SPEED AND CONSISTENCE

Speed of Mill R.p.m.	Consistence (approximate) Per cent	Cascading Angle: Oval Rods Degrees	Cascading Angle: Circular Rods Degrees
18	10	40	40
27	10	60	55
30	10	60	55
34	10	90	80
18	1	25	15
34	1	45	25
18	Water only	25	15
34	Water only	45	25

4 per cent consistence to develop higher tearing strength properties when milled with the oval rods. This is based on the assumption that the tearing strength properties depend upon a close interlacing of fibers, and that this interlacing is facilitated by the partly loosened fibrils which are produced to a limited degree more effectively by a pounding than by a rubbing action.

Power Consumption

The power consumed during each of the runs is shown in Table V.

TABLE V
DATA ON POWER CONSUMPTION WITH OVAL AND CIRCULAR RODS

			Power consumed to develop a bursting strength of—							
			0.6 pt. /lb./ream				0.5 pt./lb./ream			
					Horsepower-days per ton				Horsepower-days per ton	
Rod mill run, No.	Rods used, Type	Consistence of pulp, Per cent	Time required, Minutes	K.W. hours	3x5-foot mill batchwise	6x12 foot mill continuous	Time required, Minutes	K.W. hours	3x5-foot mill batchwise	6x12 foot mill continuous
49	Circular	8	55	8.0	33.7	23.5	27	4.1	18.3	12.1
50	Circular	4	135	18.3	81.8	54.0	53	7.1	31.7	21.0
52	Oval	8	65	10.6	47.4	31.2	39	6.4	28.6	18.9
53	Oval	4	135	19.1	85.4	56.2	70	9.6	42.9	28.3

The amounts of power necessary to develop a bursting strength value of 0.6 point per pound per ream in the test sheets made from the stuffs are used as a basis of comparison inasmuch as this is the usual strength developed in test sheets of commercially beaten kraft pulps. Since the rate of development of strength producing properties in run No. 50 decreased considerably after about 0.5 point per pound per ream was reached, the amounts of power necessary to develop this lower bursting strength factor in the test sheets are also included in the table.

From the data it is evident that for developing properties in the stuffs producing high bursting strength in papers, the circular rods are more economical of power than oval rods, solely because the time required is less. To develop a bursting strength factor of 0.6 at 8 per cent consistence with the circular rods required only about 75 per cent of the power expended with oval rods; to develop a bursting strength factor of 0.5 required only 64 per cent on the same basis. At 4 per cent consistence the power expended by the circular rods was approximately 95 and 74 per cent, respectively, of the requirements of the oval rods.

The power consumption figures which are given in horsepower-days per ton for batchwise operation of the 3 by 5-foot rod mill can be converted to those for continuous operation of a 6 by 12-foot commercial mill by multiplying by 0.66.

General Discussion of Data

The freeness tests showed that the circular rods at both consistences slowed the pulp more rapidly than did the oval rods. Since the slowness of a pulp as measured by the usual type of freeness tester is affected by both hydration and particle size, it is impossible to determine by this test whether the pulp is beneficially hydrated or injuriously cut. However, by comparing the various strength curves of bursting, tearing and folding resistance against milling time, the principal effects of the rods may be somewhat evaluated.

The high bursting and tearing strength and folding endurance developed by the pulp from run No. 49 indicates that hydration with a minimum of cutting was responsible for its rapid decrease of freeness. On the other hand, although the freeness curve for run No. 50 is approximately the same as that for run No. 49, the lower bursting strength maximum obtained indicates a lesser degree of hydration, while the decidedly lower folding endurance and tearing strength show that considerably more cutting has taken place in run 50 than in run 49.

In runs 52 and 53 using the oval rods on pulps at 8 and 4 per cent consistences, respectively, the freeness values show that there is less hydration or cutting, or both, than with the circular rods. The lower bursting strength developed in run No. 52 indicates that the degree of hydration is less than in run No. 50, while the lower folding and tearing tests of the former show a greater cutting action taking place. The amount of cutting, however, is not enough to make up in its effect on freeness for the lower degree of hydration, and therefore the freeness curve does not correspond with those of runs 49 and 50.

In run No. 53 the hydration is somewhat below that of run No. 50 as shown by the lower bursting strength values, but the cutting as shown by the folding endurance curves is about equal. The tearing strength curves indicate that less cutting took place in run No. 53 than in run No. 50. It appears logical that the pounding action of the oval rods at the low consistence in run No. 52 where a cushioning effect of the pulp was at a minimum, caused the ends of the fibers to split into fibrils to a greater degree than the rubbing caused by the circular rods in run No. 50. These fibrils were probably responsible for a more intimate interlacing of fibers and therefore a higher tearing strength, although the fiber lengths of the two pulps may have been equal.

Although from the results of these tests the oval rods are inferior to circular rods for beating pulp, they may prove superior for refining the softened chips from the semichemical cooking processes. For this purpose a maximum of attrition and separation of fibers is desired.

Conclusions

From a comparative study of circular and oval rods in the rod mill the following conclusions can be drawn:

1. The hydration as measured by the flow rate method and the rates of development and maximums of bursting, tearing, and folding strengths are greater with the circular than with the oval rods at 8 per cent pulp consistence, and, therefore, the power requirement for processing a given pulp to the desired stuff would be considerably lower with circular rods.

2. At 4 per cent consistence, the same conclusions can be drawn except with the tearing strength, where the rate of development as well as the maximum value of this property is lower with the circular rods than with the oval rods.

3. The difference in processing effects of oval and circular rods may be ascribed to the different manner in which they fall in the mill. Rotational speed and consistence are the two important factors in their influence upon milling efficiency and effects.

4. The serviceability of the oval cast iron rods is apparently equal to that of the circular steel rods in a rubber lined mill, there having been no chipping or fracturing during this study.

Literature Citations

(1) Forest Products Laboratory Manual of Testing Methods for Wood, Pulp, Stuff and Paper, 1st Ed. 1928.
(2) L. A. Carpenter and E. R. Schafer, Rate of Flow Test for Evaluating Groundwood, Tech. Assn. Papers, XIII: 263-266 (1930).

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Drying

Process and Arrangement for De-watering Liquids Containing Stock, (Wood, Cellulose). Einar Fritiof Sundstrom & Karl E. Steen, Sundsvall, Sweden, Czech. pat. 38,783.—J. F. O.

Process and Arrangement for the Steam Inlet to Drying Cylinders of Paper Machines. C. Rudd, Saffle. Swed. pat. 74,769 (Feb. 4, 1931). By means of a pipe line within the drying cylinder the steam is directed against that part of the dryer which comes in contact with the wettest part of the paper.—J. F. O.

Dryer Felt for Paper Machines. Eduard von Asten, Hauset, Belgium. Ger. pat. 560,748 (Aug. 5, 1931). A textile material covered on one or both sides with metal is used as a dryer felt.—J. F. O.

Dryer Felt with Several Layers of Asbestos and Other Fibers for Board and Paper Machines. Hutter & Schrantz A. G. Niemes. Czech. pat. 38,803. Only the inner layers have cross threads of asbestos or other fibers spun with asbestos.—J. F. O.

Drying Installation for Board and Similar Materials. Aeromeccanica Italiana Borla, Turin, Italy. Ger. pat. 565,138 (Feb. 18, 1931). The board is carried through a drying chamber on a screen conveyor, to which warm air is conducted through specially constructed air ducts.—J. F. O.

Drying Device. A. Bol. Svenska Flaktfabriken, Stockholm. Nor. pat. 50,709 (April 11, 1930). A system of heating bodies within the canal for drying the material.—J. F. O.

Concerning the Economics of Aerating of Paper Machines. Richard Nothlichs Freiberg. Wochbl. Papierfabr. 63, No. 48; 874-77; No. 51; 936-39 (Nov. 26, Dec. 17, 1932). By means of numerous equations the author brings out the following factors which have a bearing on the economic operation of an aerating installation for a paper machine. 1. The amount of fixed charges; 2. The more or less great possibility of the increase in average production being dependent on things other than the aerating installation; 3. The cost of heating the air; 4. The amount of use; 5. The felt life, and 6. The adaptability and object of the aerating installation. —J. F. O.

Barkers

Recent Viewpoints on Drum Barking. W. Schmid. Papier-Fabr. 30, No. 42; 603-06 (Oct. 16, 1932). The barking drums of recent construction are made mostly for the barking of long wood. The drums are only slightly longer than the wood, thereby preventing brooming of the ends of the logs. An installation manufactured by Waplans Mekanisk Verkstad is described. In this drum the wood is fed by mechanical means, nearly automatic and continuously. Several new methods for loading and emptying the drums are mentioned, such as; lowering and raising the drum itself, or changing the level of the water so that the logs float in and out. The pre-treatment of the logs by steaming or the use of waste liquors has not proved itself economical. —J. F. O.

Process for the Barking of Wood Logs. Polser Zellulose und Papierfabrik A.G. Polz. Aust. pat. 127,808 (Dec. 15, 1931). The logs are barked in barking devices whose principle for removing the bark depends on the rubbing together of the logs. The logs are placed in a bath of the waste liquor from sulphite digesters or the waste liquor from the blow pits.—J. F. O.

Process for the Simultaneous Barking of Pulp Wood and Evaporation of Sulphite Waste Liquor for the Purpose of Producing a Combustible Material. G. Ekman, Gotenberg. Swed. pat. 73,637 (July 23, 1928). The waste liquor is used to loosen the bark and the two are mixed and burned.—J. F. O.

Barking Drums. G. Antonoff. Wochbl. Papierfabr. 63, No. 45; 827-29; No. 46; 842-45 (Nov. 5, 12, 1932). The advantages of barking drums for non-floated, as well as floated wood are stated. The earliest barking drums are briefly described, then the modern barking drums, such as, the Guettler, Kamyr, Hellner, Johansson and Waplan are discussed in detail, especially the construction and operation.—J. F. O.

Machine for the Barking of Tree Trunks. Felix Gobel & Sixten M. Hjelte, Alfeld. Ger. pat. 559,465 (July 16, 1931). A conical barking device is used.—J. F. O.

Steaming Method for the Barking of Wood. Harald M. Korpi. Helsinfors, Finland. Nor. pat. 50,379 (Jan. 1, 1931). The pulp wood being barked is subjected to steam under pressure while it is in the barking drum or other apparatus.—J. F. O.

Spade Shaped Barking Knife. A. Wastman, G. Wastman & B. Wastman, Norrbyberg, Swed. pat. 74,685 (June 26, 1930).—J. F. O.

Combination Spade Shaped Barking Knife with Turning Heel. E. Aas, Fiskum, Norway. Swed. pat. 74,820 (Dec. 4, 1930).—J. F. O.

Process for the Drum Barking of Long Logs as Well as for Devices Which Serve Therefore. F. Berggren, Kramfors. Swed. pat. 74,686 (Dec. 23, 1930). Method by which the logs are floated into the barking drum, and during the actual barking the drum is raised and at the end of the barking the drum is lowered and the barked logs are floated out.—J. F. O.

Barking Machine. A. Bol. Ekonomisk Traforadling, Stockholm. Finn. pat. 14,218 (Feb. 20, 1929).—J. F. O.

Process for the Barking of Pulp Wood. J. Strindlund, Tofte, Norway. Swed. pat. 74,055 (Nov. 1, 1930). The logs are partially barked with a knife barker and finished by a treatment in a moistening barking apparatus..—J. F. O.

Arrangement for Wood Barking Drums. A. S. Thunes Mek. Verksted, Oslo, Nor. pat. 50,649 (May 16, 1931). The barking drum is so constructed that the logs do not come in contact with any sharp edges—J. F. O.

Barking Drum. R. Schulerud, Vestfossen. Nor. pat.

50,910 (March 12, 1931) The drum is submerged in water in a container so that the weight of the drum and contents is displaced.—J. F. O.

Machine for the Barking of Wood. Papierfabrik Perlen, Luzern, Switzerland. Ger. pat. 564,909 (Jan. 24, 1931).—J. F. O.

Supporting Device and Drive Arrangement for Barking Drums. E. Orrmell, Kramfors. Swed. pat. 73,725 (Dec. 22, 1930).—Within the barking drum are at least two shafts which serve both as a support and as the drive of the drum.—J. F. O.

Process for the Barking of Wood. John Strindlund, Tofte, Norway. Ger. pat. 555,257 (Oct. 31, 1931).—The wood is first partially barked by a knife barker, and the remaining bark is removed by a wet barking machine.—J. F. O.

Barking Drum. Reidar Schulerud, Vestfossen, Norway. Ger. pat. 556,824 (Dec. 19. 1931).—J. F. O.

Process and Arrangement for the Barking of Long Wood by Means of a Barking Drum. Frans Berggren, Kramfors, Sweden. Ger. pat. 556,281 (March 3, 1931). —The patent is characterized by having the drum so fixed that it can be lowered into the water so that the logs can float in, the drum is then raised and the wood is barked, at the conclusion of which the drum is again lowered and the logs are allowed to float out.—J. F. O.

Barking Apparatus. Billnas Bruks Aktiebolag, Billnas, Sweden. Ger. pat. 555,028 (Dec. 1, 1931).—J. F. O.

Machinery

Doctor for Paper Machine Rolls. Frederick W. Vickery, assignor to Vickery Inc. U. S. pat. 1,883,167 (Oct. 18, 1932).—The doctor comprises a resilient blade mounted along its rear edge on a rigid support. A spring acting on the outer face of the blade presses it upon the roll and a second spring acting on the rear edge of the blade presses it in its own plane towards the roll. —A. P.-C.

Doctor for Drums and Rolls of Paper Machines, Calenders and Similar Objects, in Which the Doctor Blade is Connected with the Supporting Part in a non-rigid manner. Saming E. Akre, Oslo. Aust. pat. 126,403 (May 15, 1930).—J. F. O.

Process for the Operation of Multiple Effect Evaporators. Metallgesellschaft A.G. Frankfurt a.M. Ger. pat. 562,496 (Dec. 7, 1928.)—J. F. O.

Doctor for the Rolls of Paper Machines and Similar Apparatus. Vickerys Ltd., London. Aust. pat. 127,194 (Nov. 15, 1931).—J. F. O.

Doctor for Paper Machines and Similar Apparatus. Vickerys Ltd., London. Ger. pat. 561,239 (July 31, 1930). —J. F. O.

Process for Thickening Liquors, Especially Waste Liquors from the Manufacture of Pulps. Industrikemiska Aktieolaget, Stockholm. Ger. pat. 553,967 (Nov. 16, 1927).—The waste liquors are thickened by passing a gas through the liquor.—J. F. O.

Evaporator for Waste Liquors in the Manufacture of Pulp. C. A. Gejer, Skoghall, Swed. pat. 75,031 (Aug. 22, 1927).—J. F. O.

Method for the Operation of Multiple Effect Evaporators. Metallgesellschaft A.G. Frankfurt a.M. Ger. pat. 562,496 (Dec. 7, 1928).—Method for operating the pumps used to convey the liquor to the different evaporator bodies.—J. F. O.

Method of and Apparatus for Applying Designs to Paper. Cassius M. Bryan, assignor to Strathmore Paper Co. U. S. pat. 1,833,526 (Oct. 18, 1932).—At some point between the couch and the first press, the fibers of the web are displayed in such a manner as to form a predetermined design, so that when the web is pressed and dried the design is preserved. This is effected by passing the wet sheet between a lower supporting roll and an upper roll carrying suitably shaped projections; the upper roll may be rotated at the same or a different speed from the sheet and may also be given a sideways displacement across the width of the sheet.—A. P.-C.

Paper Marking Roll. G. Weber. U. S. pats. 1,883,183, 1,883,184, 1,883,185 and 1,883,187 (Oct. 18, 1932).—*No. 1,883,183*—The roll consists of a core having an engraved marking surface of a hard heat and pressure resistant composition. *No. 1,883,184*—A watermarking device is built up of a number of engraved rubber sleeves mounted on a shaft, the density of the rubber being such as to render the sleeves hard enough to watermark the sheet, but sufficiently resilient to prevent cutting it. The abutting ends of adjacent sleeves have co-operating male and female members to prevent relative rotation. *No. 1,883,185*—The roll is built up of a cylindrical core, covered with a layer of resilient material, on which are attached detachable sectional marking sleeves. *No. 1,883,187*—A layer of resilient material is secured to a shaft, and detachable metallic sleeves are fitted snugly over the resilient layer. Stereotype marking plates are removably attached to the sleeves. —A. P.-C.

Paper Roll. John E. Hires assignor to Scott Paper Co. U. S. pat. 1,882,012 (Oct. 11, 1932).—The core is formed with a corrugated cross section, and comprises a number of plies of the paper to be wound firmly glued together.—A. P.-C.

Arrangement for the Regulation of the Pneumatic or Pneumatic Hydraulic Increase or Decrease in the Loading of Press Rolls for Paper, Pulp and Carton Industries. Maschinenfabrik Akt. Ges. Wagner & Co. Kothen. Ger. pat. 563,442 (Aug. 7, 1930).—J. F. O.

Suction Roll for Paper and Similar Machines. Max Wenzel, Post Wolfsgrun. Ger. pat. 561,371 (April 15, 1928).—J. F. O.

Press Roll for Pressing Out the Liquid From a Sheet of Pulp. Maschinenfabrik Imperial G.m.b.H. Meissen Ger. pat. 560,422 (Feb. 12, 1931).—The press roll is provided with an elastic covering that is grooved, rubber being used for this covering.—J. F. O.

Paper Making Process. James R. Simpson, assignor to Beloit Iron Works. U. S. pat. 1,883,022 (Oct. 18, 1932).—The wire is not shaken at the breast roll, so that the sheet is relatively quiescent as it begins to form, but it is shaken at a point between the breast roll and suction boxes.—A. P.-C.

Joint for Endless Metal Webs, Especially for Paper Machine Wires. Compagnie Generale d'Electricite Societe Anonyme, Paris. Ger. pat. 556,003 (Jan. 8, 1929).—J. F. O.

Process and Arrangement for Making Joints on the Wire Similar to the Weave, Used Especially in the Manufacture of Paper. F. Oberdorfer, G.m.b.H. Heidenheim. Aust. pat. 126,826 (Oct. 15, 1931).—J. F. O.

Arrangement for the Manufacture of Wire Gauzes, Especially for the Imbedding or Placing Between Paper or Similar Webs of Stock. Berkenhoff & Drebes Akt. Ges. Asslar. Ger. pat. 552,713 (March 5, 1931).—J. F. O.

Process for Guiding Moving Bands, Especially the Wire and Felts of Paper Machines. Societe Anonyme C.E.M.A., Adnieres, France. Ger. pat. 565,013 (April 1, 1930).—A photo electric cell is used, as well as the usual source of light.—J. F. O.

Method for the Production of a Welded Joint for

Wire Cloth, Especially for Paper Machine Wires, by Welding the Warp Threads. Oberdorfer G.m.b.H. Heidenheim. Ger. pat. 559,903 (March 16, 1929).—J. F. O.

Observations Over the Problem of the Consistency Regulation. M. Buttner, Papier-Fabr. 30, No. 47; 662-64 (Nov. 20, 1932).—A polemic over a previous article in which the author contends that the comparison of the consistency regulators were not made under identical condition. A rebuttal follows this article.—J. F. O.

Device at the Head Box for Regulating the Stock On to a Fourdrinier and Cylinder Machine of the Paper and Related Industries. Max Wenzel, Neidhartsthal. Ger. pat. 564,555 (Dec. 24, 1930).—J. F. O.

Stock Outlet for Fourdrinier and Similar Machines, by Which the Fibrous Material Can be Blown Out by Means of Compressed Air On to a De-Watering Wire or a De-Watering Felt. Firma J. M. Voith, Heidenheim. Aust. pat. 127,198 (Nov. 15, 1931).—The amount of stock of the desired consistency which can be deposited onto the de-watering wire or the de-watering felt, is regulated by the pressure or by the speed of the current of air. —J. F. O.

Method of Operation of a Consistency Regulator, Especially for the Manufacture of Paper, With a Funnel Through Which Stock Flows, and Which Is Attached to One End of a Balance Beam. Franz Hassmann, Kotzschenbroda. Ger. pat. 563,441 (March 25, 1930).—J. F. O.

Power

Speed Reducers in the Pulp and Paper Industry. James A. Porter. Paper Trade J. 95, No. 25: 31-34 (Dec. 22, 1932).—A general discussion of the merits and field of application of the several types of speed reducers and of the selection of the proper type for different classes of work in the pulp and paper mill.—A.P.-C.

Paper Mill Lubrication. F. M. Yenny. Paper Mill 55, No. 47: 4 (Nov. 19, 1932).—A brief discussion of the importance of proper lubrication in paper mills.—A.P.-C.

Control of Preventable Waste. W. J. O'Brien. Paper Mill 55, No. 47: 8-14 (Nov. 19, 1932).—A discussion with examples illustrating the savings which can be effected by eliminating waste through the installation of various types of indicating, recording and integrating instruments.—A.P.-C.

How a Paper Mill Reduced Power Cost. F. Weber. Paper Industry 14: 668-669 (Dec., 1932).—An example is given of how the installation of extraction type turbines effected a saving of over $32,000 annually.—A.P.-C.

Return Boiler Feed Water. K. Weiss. Zellstoff Papier 12, No. 10: 404-06 (Oct., 1932).—A small part of the boiler water is continuously removed in order to separate out the solids. This water is treated with chemicals to regulate the hardness and in such a manner that none is lost and that there is no loss in heat value. An installation for this purpose is described with necessary curves and other data.—J. F. O.

The Economics of Lubrication in the Pulp and Paper Industry from the Viewpoint of the Practical Man. Bruno Bichlbauer-Buhlhof. Papier-Fabr. 30, No. 23A: 85-96 (June 4, 1932).—A long discussion over the necessity of giving more attention to lubrication in pulp and paper mills. The author discusses ways of filtering and re-using lubricating oils and the cost and consumption of lubricating oils and greases, etc.—J. F. O.

Graphite Greasing in the Paper Industry. Erich Kadmer, Vienna. Wochbl. Papierfabr. 63, No. 45: 830-31 (Nov. 5, 1932). Discussion of the size of the particles of graphite, the mechanics and economies of greasing with graphite.—J. F. O.

Corrosion in Steam Boilers and Its Prevention. Wochbl. Papierfabr. 63, No. 51: 939-40 (Dec. 17, 1932). Methods are discussed for the prevention of corrosion in steam boilers.—J. F. O.

The L.V. Electric Monorail Hoist. Papeterie 54: 1289-1293 (Dec. 10, 1932).—A brief description of their construction and operation.—A.P.-C.

Arrangement for the Regulation of Electrically Driven Winders. A.E.G. Union Elektricitats Gesellschaft. Vienna. Aust. Pat. 129,215 (March 15, 1932).—The invention concerns itself with an electrical drive for winders with direct current shunt motors, in which the speed of the motor is automatically regulated by its armature current.—J. F. O.

The Most Economical Electric Calender Drive. Lorenz Kiessling. Papier-Fabr. 30, No. 30: 469-472 (July 24, 1932).—The multi-phase shunt motor is the most practical and most economical drive for calenders, because the calenders can be regulated without loss and at all speeds, it gives a good power factor and operates at a good efficiency, and other reasons. Numerous curves and line diagrams are added.—J. F. O.

The Economics of the High Pressure "Vorschalt" Turbine. P. Danninger, Gorlitz. Papier-Fabr. 30, No. 34: 517-20; No. 35: 530-33 (Aug. 21, 28, 1932). Discussion of the efficiency at full and part load, also the thermal efficiency. Much data and curves.—J. F. O.

Single Drive for the Cylinders of the Dryer Group of a Paper Machine. Siemens Schuckertwerke Akt. Ges. Berlin. Aust. pat. 126,043 (Aug. 15, 1931).—J. F. O.

Device for the Automatic Regulation of the Number of Revolutions for the Drive of a Winder. Allgemeine Elektricitats Gesellschaft, Berlin. Ger. pat. 550,093 (Dec. 5, 1929).—J. F. O.

Improvements in the Multiple Drive for Paper Machines. E. Richter, Papier-Fabr. 30, No. 23A; 103-5 (June 4, 1932). Description of some of the newer machines or devices for control in the multiple drive for paper machines.—J. F. O.

Regulating Device for Maintaining the Relative Parallel Speed in Multiple Motor Drives, Especially for Paper Machines. Siemens Schuckertwerke Akt. Ges. Berlin. Ger. pat. 562,196 (March 29, 1930).—J. F. O.

Arrangement for Regulating the Uniformity of Electric Multiple Motor Drive, Especially for Paper Machines. Aktiengesellschaft Brown Boveri & Cie. Baden. Switzerland. Ger. pat. 565,600 (July 14, 1928).—J. F. O.

Device for Getting Uniform Speed in Multiple Motor Drives. Elin. Akt. Ges. fur Elektrische Industrie, Vienna. Aust. pat. 129,594 (March 15, 1931).—J. F. O.

Process and Device for Changing the Transfer Relations in Group Drives for Paper Machines. Viktor Piatnik, Vienna. Aust. pat. 128,678 (Feb. 15, 1932.)—J. F. O.

Multiple Motor Drive for Crepe Paper Machines. Siemens Schuckertwerke A. G. Berlin. Fin. pat. 14, 420 (Dec. 19, 1928).—J. F. O.

Arrangement for the Electric Drive of a Screw Press. M. Walker, Glasgow, England. Swed. pat. 74,770 (Oct. 15, 1928).—J. F. O.

The Electric Winder. W. Kulh, Berlin-Siemensstadt. Wochbl. Papierfabr. 63, No. 44:810-13 (Oct. 29, 1932). By means of several illustrations, diagrams and curves, the author shows the construction and operation and the advantages of the electric winder.—J. F. O.

Special Electric Trucks for the Paper and Pulp In-

dustry. Gascard. Wochbl. Papierfabr. 63, No. 46: 846-47 (Nov. 12, 1932). General description with illustrations. —J. F. O.

Arrangement for Electric Motors for Holding the Speed of Rotation Constant. Elin A.G. Vienna. Ger. pat. 555,906 (Jan. 18, 1930).—J. F. O.

Individual Drives for the Drying Cylinders of Paper Machines. Siemens Schuckertwerke Akt. Ges. Berlin. Ger. pat. 559,265 (Feb. 3, 1929).—The individual drives operate with asynchronous motors synchronized together or with direct current motors which are coupled with asynchronous auxiliary motors synchronized with each other.—J. F. O.

Arrangement for the Regulation of the Speed of the Individual Motors in a Multiple Motor Drive. Siemens Schuckertwerke A. G. Berlin. Aust. pat. 127,290 (Nov. 15, 1931).—J. F. O.

Arrangement for Setting the Draw for a Sheet of Stock on a Machine With Multiple Parts, Preferably Driven by Electric Motors. Siemens Schuckertwerke Akt. Ges. Berlin. Ger. pat. 554,656 (Dec. 19, 1925). —J. F. O.

Automatic field regulator, especially for paper machine multiple motor drive. Siemens Schuckertwerke Akt. Ges. Berlin. Ger. pat. 553,698 (May 14, 1930).—J. F. O.

Squirrel Cage Motors in Industrial Operations. N. Lindblad. Svensk Pappers-Tidn. 35, No. 20: 683-684, 689; No. 21: 711-714, 717 (Oct. 31, Nov. 15, 1932); Bull. Inst. Paper Chem. 3: 115.—The three phase squirrel cage motor has found an increasing application as drive in industry during recent years. The author describes the advantages of this motor type, listing its safety and dependability as main features.—C. J. W.

Properties, Investigation and Purification of Surface Waters. B. Groth. Svensk Pappers-Tidn. 35, No. 22: 744-746, 749; No. 23: 778, 781-782, 787 (Nov. 30, Dec. 15, 1932); Bull. Inst. Paper Chem. 3: 151.—Groth discusses the problem of water purification for pulp and paper mills under the following five main headings: removal of mechanical impurities, such as mud and plankton; removal of microorganisms, such as bacteria and algae; removal of organic substances, especially humus combined with iron; removal of hardness (lime and magnesia); special methods of water purification for boiler feedwater.—C. J. W.

Recent Developments in Heat Engineering. R. W. Müller. Svensk Pappers-Tidn. 35, No. 23: 792-794 (Dec. 15, 1932); Bull. Inst. Paper Chem. 3:150. A brief review of recent trends and developments in the field of heat technology.—C. J. W.

Problems in the Operation of a Yankee Machine. William Fogarty. Paper Trade J. 96, No. 2: 35-36 (Jan. 12, 1933).—Solutions which were found by experience to be workable are given for some problems encountered in the operation of the Yankee machine at the mill of the Pittston Paper Corp., Pittston, Pa. —A.P.-C.

Cylinder Paper Machine. Howard Parker, assignor to Brown Co. U. S. pat. 1,881,912 (Oct. 11, 1932).—This is an improvement to Parker's U. S. pat. 808,614, of Dec. 26, 1905. The former patent provides an apparatus consisting of a pair of cylinder molds each having a couch roll and an endless felt on which the pulp web can be picked up from each mold as soon as it is formed; the two felts are brought together on a suction roll in such a manner as to bring the two pulp webs into interfacial contact, the two felts being brought into contact on the suction at a point in advance of the nip between the suction roll and the press roll. According to the present invention the outer felt is guided so as to reach the suction roll at the nip between the suction and press rolls.—A.P.-C.

Multiple Cylinder Paper Machine. Howard Parker, assignor to Brown Co. U. S. pat. 1,881,914 (Oct. 11, 1932).—The pulp vat associated with each cylinder is constructed and mounted so as to open into an upper quadrant of the cylinder. The pick-up felt passes under the successive cylinders and tangent to the bottoms thereof. A press roll is pressed yieldingly against the bottom of each cylinder mold. A suction box is provided under the felt just ahead of the point where it enters the nip of each cylinder mold and its associated press roll.—A.P.-C.

Arrangement for the Utilization of Used Carbon Paper. Georg Futter, Berlin. Aust. pat. 126,599 (Sept. 15, 1931).—The arrangement consists of an arched electrical heating body and a feed roll for the carbon paper.—J. F. O.

The Efficiency of a Board Machine. Markus. Wochbl. Papierfabr. 63, No. 43: 793-94 (Oct. 22, 1932). —A formula for the efficiency of a board machine is given, and an example of same is worked out. The effect of the machine speed, the weight of the stock, the thickness of the board, etc. are discussed. The losses at the presses, the dryers, rolls and cutters are figured out.—J. F. O.

Process and Arrangement for the Manufacture of Corrugated Paper with the Corrugations Oblique to the Edge. Aktiengesellschaft fur Cartonnagen Industrie, Dresden, Ger. pat. 558,793 (Oct. 30, 1931).—J. F. O.

Arrangement for the Heating of the Hot Plates in the Two-Sided Corrugated Board Machine. Gunter Clemens, Hamburg. Ger. pat. 553,252 (July 21, 1929). —J. F. O.

The Efficiency of a Board Mill. Eberhard Jeitteles. Wochbl. Papierfabr. 63, No. 49:897-90 (Dec. 3, 1932).—The author disagrees in certain respects with the original article appearing in No. 43 of Wochbl. Papierfabr. of 1932.—J. F. O.

Device for Adjusting the Trim at Stock Inlets with Movable Upper Inlet Lip on Fourdrinier Machines. Firma J. M. Voith, Heidenheim. Ger. pat. 564,556 (Oct. 8, 1931).—J. F. O.

Paper Machine. A./S. Thunes Mek. Verksted & G. Golbs, Skoeyen. Nor. pat. 50,540 (October 14, 1930).—Special arrangement for one of the wet presses.—J. F. O.

Cylinder Machine for the Production of Paper, Board, Carton and Similar Materials. Alois Purkert Papier und Pappenfabrik A. G. Teplitz Schonau, Czech. Ger. pat. 563,023 (March 28, 1931).—J. F. O.

Combination Possibilities for Fourdrinier and Cylinder Machines in the Paper and Board Mills. Wochbl. Papierfabr. 63, No. 53:970 (Dec. 31, 1932).—A brief discussion of some of the possibilities mentioned in the original article by Jung, appearing in Wochbl. Papierfabr. numbers 23, 24, 37, and 39 of this year.—J. F. O.

Arrangement for the Equalization of the Tension in the Course of the Web of Paper for Continuous Printing Machines, Paper Machines and Similar Machines with Multiple Motor Drive for the Machine Parts. Allegemeine Elektricitats Gesellschaft, Berlin. Ger. pat. 556,070 (Dec. 9, 1930).—A current of air, which can be regulated, is blown onto the sheet between the individual machine parts.—J. F. O.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 14, 1933

CIGARETTE PAPER

P. J. Schweitzer, Pres. van Buren, Marseilles, 2 cs.; Standard Products Corp., Ile de France, Havre, 7 cs.

WALL PAPER

A. L. Diament, Ile de France, Havre, 1 cs.

NEWS PRINT

International Paper Co., Cornerbrook, Dalhousie, 5963 rolls; Jay Madden Corp., Stuttgart, Bremen, 131 rolls.

PRINTING PAPER

Borden Riley Paper Co., Stuttgart, Bremen, 4 cs.; C. Steiner, Stuttgart, Bremen, 28 cs.; H. G. Craig Co. Inc., Donnacona I, Donnacona, 571 rolls; F. C. Strype, Burgerdyk, Rotterdam, 6 cs., 14 rolls; Walker Goulard Plehn Co., Scanmail, Helsingfors, 174 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., American Banker, London, 6 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Banker, London, 6 cs.

WRAPPING PAPER

Borden Riley Paper Co., Stuttgart, Bremen, 20 cs.; Japan Paper Co., Minnetonka, Antwerp, 2 cs.; Standard Products Corp., Minnetonka, Antwerp, 15 cs.; American Express Co., Minnetonka, Antwerp, 2 cs.; Heemsoth Basse & Co., Burgerdyk, Rotterdam, 43 bls.

BASIC PAPER

F. C. Strype, Stuttgart, Bremen, 4 cs.

DECALCOMANIAS

Sellers Transportation Co., Europa, Bremen, 19 cs.

TRANSFER PAPER

Rohner Gehrig & Co., Europa, Bremen, 4 cs.

TISSUE PAPER

P. J. Schweitzer, Pres. van Buren, Marseilles, 18 cs.; W. J. Byrnes, Pr. Roosevelt, Havre, 1 cs.

SILK PAPER

——, Ile de France, Havre, 10 cs.

ENVELOPES

Beckhard Simfred Co., Pr. Roosevelt, Hamburg, 22 cs.

MISCELLANEOUS PAPER

Japan Paper Co., Ile de France, Havre, 5 cs.; ——, Europa, Bremen, 7 cs.; T. N. Fairbanks, Pr. Roosevelt, Havre, 1 cs.; ——, Pr. Roosevelt, Hamburg, 4 cs.

RAGS, BAGGINGS, ETC.

Banco di Napoli Trust Co., American Banker, London, 31 bls. paper stock; E. J. Keller Co. Inc., Stuttgart, ——, 51 bls. rags; ——, Stuttgart, Bremen, 72 bls. bagging; Castle & Overton, Inc., Black Gull, Antwerp, 51 bls. rags; Castle & Overton, Inc., Black Gull, Antwerp, 171 bls. flax waste; Irving Trust Co., Black Gull, Antwerp, 107 bls. cuttings; Chase National Bank, Black Gull, Antwerp, 205 bls. cotton waste; E. J. Fawcett, Black Gull, Antwerp, 183 bls. flax waste; A. H. Searle, Black Gull, Antwerp, 29 bls. rags; E. J. Keller Co. Inc., Black Gull, ——, 42 bls. rags; E. J. Keller Co. Inc., Black Gull, ——, 100 bls. bagging; J. Cohen Sons Co. Inc., Scythia, Liverpool, 30 bls. paper stock; Amtorg Trading Corp., Scanmail, Leningrad, 1367 bls. rags.

GLUE STOCK, ETC.

——, Stuttgart, Bremen, 75 bags hide glue.

CASEIN

Kalbfleisch Corp., Knockfierna, B. Ayres, 501 bags; ——, Knockfierna, B. Ayres, 834 bags; American & British Chemical Supply Co., McKeesport, Havre, 334 bags.

WOOD PULP

M. Sone, Pr. Roosevelt, Hamburg, 700 bls. wood pulp.

ALBANY IMPORTS

WEEK ENDING OCTOBER 14, 1933

Polarus Shipping Co., Emmy L. D., Newcastle, 2172 bls. pulpwood; Bulkley Dunton & Co., Ditmar Koel, ——, 3900 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING OCTOBER 14, 1933

Meredith Linen Mills, Black Gull, Antwerp, 78 bls. flax waste; Spaulding Fibre Co., Black Gull, Antwerp, 939 bls. flax waste; Darmstadt Scott & Courtney, Black Gull, Antwerp, 130 bls. jute waste; Irving Trust Co., Black Gull, Antwerp, 50 bls. bagging; F. J. Fawcett, Black Gull, Antwerp, 119 bls. flax waste; J. T. Lodge, Black Gull, Antwerp, 10 bls. rags; C. H. Powell, Black Gull, Antwerp, 92 bls. cotton waste; ——, Scythia, Liverpool, 140 bags hide cuttings; ——, Scythia, Liverpool, 67 bls. rags; C. H. Powell, Burgerdyk, Rotterdam, 22 bls. cotton waste; C. H. Powell, Burgerdyk, Rotterdam, 80 pkgs., 240 rolls straw boards; H. P. Lambert, Burgerdyk, Rotterdam, 38 bls. rags; Cordingley & Co., Inc., Burgerdyk, Rotterdam, 18 bls. rags; Castle & Overton, Inc., Burgerdyk, Rotterdam,

260 bls. wood pulp; Bulkley Dunton & Co., Berengar, ——, 825 bls. wood pulp; E. J. Keller Co. Inc., Berengar, ——, 336 bls. wood pulp; E. J. Keller Co. Inc., Berengar, ——, 32 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 14, 1933

Union Waste Co., Black Gull, Antwerp, 25 bls. rags; Philadelphia Nat'l Bank, Black Gull, Antwerp, 177 bls. rags; National Vulcanized Fibre Co., Black Gull, Antwerp, 63 bls. rags; Castle & Overton, Inc., Burgerdyk, Rotterdam, 150 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 14, 1933

N. Y. Trust Co., Burgerdyk, Rotterdam, 560 bls. wood pulp; Castle & Overton, Inc., Burgerdyk, Rotterdam, 820 bls. wood pulp; National City Bank, Burgerdyk, Rotterdam, 532 bls. rags; National City Bank, Burgerdyk, Rotterdam, 113 bls. bagging; Congoleum Nairn Co., McKeesport, Havre, 519 bls. rags; Congoleum Nairn Co., McKeesport, Dunkirk, 808 bls. rags; Keene & Arkus, McKeesport, Dunkirk, 81 bls. bagging; E. J. Keller Co. Inc., City of Baltimore, ——, 336 bls. wood pulp; Bulkley Dunton & Co., Tugela, ——, 4675 bls. wood pulp; Bulkley Dunton & Co., Black Heron, ——, 700 bls. wood pulp; Bulkley Dunton & Co., Carlsholm, ——, 625 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 14, 1933

Irving Trust Co., Burgerdyk, Rotterdam, 194 bls. bagging; J. J. Ryan & Sons, Burgerdyk, Rotterdam, 250 bls. cotton waste; Keene & Arkus, McKeesport, Dunkirk, 102 bls. bagging.

NEWPORT NEWS IMPORTS

WEEK ENDING OCTOBER 14, 1933

Bulkley Dunton & Co., Tugela, ——, 2797 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING OCTOBER 14, 1933

E. J. Keller Co. Inc., Recca, ——, 290 bls. rags.

SAVANNAH IMPORTS

WEEK ENDING OCTOBER 14, 1933

Manufacturers Trust Co., Tokai Maru, Shanghai, 204 bls. bagging.

Collins Mfg. Co. Insures Employees

NORTH WILBRAHAM, Mass., October 17, 1933—The Collins Manufacturing Company here has adopted a double coverage group insurance plan for the benefit of its nearly 250 employees at the paper mills here. The plan includes over $200,000 life insurance and weekly payments in case of sickness or non-occupational injury. Occupational injury in the state of Massachusetts is subject to relief from the industrial accident commission in case of dispute with the insurance companies carrying such insurance. The insurance is written on a cooperative basis with individual employees receiving from $750 to $3,000 in life insurance and benefits payable in case of sickness from $7.50 to $20 a week. There is also included in the plan a visiting nurse service and distribution of pamphlets on health.

Boston Paper Market Quiet

BOSTON, Mass., October 16, 1933—The week was generally rather quiet in the wholesale paper market in and around the Hub, partly due to the holiday. Business as a whole, however, was slightly better than during the previous few weeks. The situation in fine paper looks fairly good on the surface and there are indications of a little improvement. New lines continue to be offered with at least a fair response. Wrapping paper dealers are beginning to feel the effects of the Fall demand, which has improved moderately. Manufacturers of various lines are busily operating on old orders. While the box board market, like the paper market, was somewhat quiet, there was evidence of a slight betterment. It is stated that all supplies ordered are for rush delivery. Board prices are holding well. As in wrapping paper, the seasonal demand for twine is being felt to some extent.

The week was quiet in paper stock. Several grades of old papers declined in price, but other materials, with a few exceptions, held their own. White blank news was marked down to 1.15 @ 1.25 from a former range of 1.20 @ 1.30; No. 1 mixed papers to .32½ @ .35 from 37¼; print manilla to .55 @ .65 from .75 @ .80; overissue news to .55 @ .60 from .80 @ .90; old newspapers to .55 @ .60 from .62½ @ .65; box board chips to .32½ @ .35 from .45 @ .50, and screening wrappers to .60 @ .70 from .75 @ .85. Corrugated boxes are quoted in a range of .37½ @ .42½, compared with a former flat price of .40. Bagging was rather weak, although no radical price changes took place. In new domestic rags, practically all grades are holding their price levels. In old domestic rags, No. 2 roofing stock declined to .50 @ .55 from .55 @ .65. Foreign rags, for the most part, are holding, although dark cottons were marked down to .80 from .95, and old linsey garments to 1.10 from 1.35.

Thickness and Compressibility of Fabrics

The National Bureau of Standards Research Paper No. 561 describes the compressometer, an instrument developed primarily for measuring the thickness and the change in thickness of textile or similar materials when it is subjected to increasing or decreasing pressures. Data of this kind are given for several types of textiles, and also sheet rubber and paper. The importance of defining thickness of easily compressible materials such as these, in terms of the pressure applied in making the measurement, is emphasized. The instrument affords a precise simultaneous measurement of thickness and applied pressure.

Thickness of paper is a critical factor in many of its uses; tabulating cards for example, which must fit exactly in the fast-running tabulating machines. It is included in many paper purchase specifications, but the standard method of measuring it permits such wide variation in the pressure applied, necessarily because of the type of instruments used, that conflicting test data often result. In view of this situation, some study was made of the applicability of the "Compressometer" to paper. It lacked sufficient rigidity for the greater loads required for papers, but a modified design gave very promising results. Tests of several types of papers, having a wide range of hardness, indicated that for most papers the decrease in thickness with increasing pressure tended to become quite constant with an applied load of between 3 to 5 pounds. The use of this instrument for measurement of hardness or softness of papers, as indicated by rate of compression with regular increments of pressure, is an interesting possibility. Unfortunately, the discontinuance of this work was necessitated by lack of funds.

For Research Paper No. 561 write to Superintendent of Documents, Washington, D. C.—Send 5 cents (cash).

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 18, 1933.

Conditions in the local paper market are fairly satisfactory. While demand for the various standard grades of paper is light at present, trading should become more lively following final approval of the Code for the paper and pulp industry, which is anticipated shortly. The price situation is practically unchanged.

The news print paper market is showing signs of improvement. Advertising volume in the leading newspapers is expanding and consumption should increase thereby. Stocks of news print paper at Canadian and United States mills totalled 56,389 tons at the end of September, compared with 63,045 tons on August 31.

Operations in the paper board mills are proceeding at near capacity. Demand for box board is fairly persistent. Prices remain unchanged. The fine paper market is marking time. Tissues are moving in good volume. The coarse paper market is irregular. Efforts are being made, however, to stabilize quotations.

Mechanical Pulp

The ground wood pulp market is displaying a fairly strong undertone. Production in the United States and abroad is being maintained in sufficient volume to take care of current requirements and accumulations are not excessive. Prices are holding to previously quoted levels, without difficulty.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Demand for the various imported and domestic grades is rather listless at present but should improve when the codes for the paper and pulp industry are in operation. Prices are generally holding to schedule and reports of concessions are infrequent.

Old Ropes and Bagging

The old rope market continues quiet. Both domestic and imported old manila rope are only in moderate request. Small mixed rope is dull. Old rope prices are fairly steady. The bagging market is soft and little interest is being shown by the mills at present in either scrap or gunny bagging.

Rags

Sentiment in the domestic rag market is improving slightly. Demand for new cotton rags is fairly satisfactory. No. 1 white shirt cuttings are steady, with offerings rather limited. While roofing rags are moving slowly the outlook for the future is brighter. The imported rag market is marking time.

Waste Paper

The lower grades of paper stock are easier and quotations have declined. With less inducement, however, collections will probably fall off and prices gradually become firm again. The higher grades of waste paper are steadier, especially hard and soft white shavings and white envelope cuttings.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Demand for the various grades should expand materially during the closing months of the year. Despite the usual keen competition for desirable orders, prices are holding.

Indianapolis Demand Sags

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 16, 1933—With the first flurry of fall buying over, the paper demand in this territory sagged somewhat last week and in many lines little is expected until the coming holiday season causes some buying. A resume of business in September shows it just about holding its own with August, but this month will fall behind to a considerable extent in many lines. While September usually is better than August in this territory, it was pointed out by trade leaders that August this year was rather an unusual year.

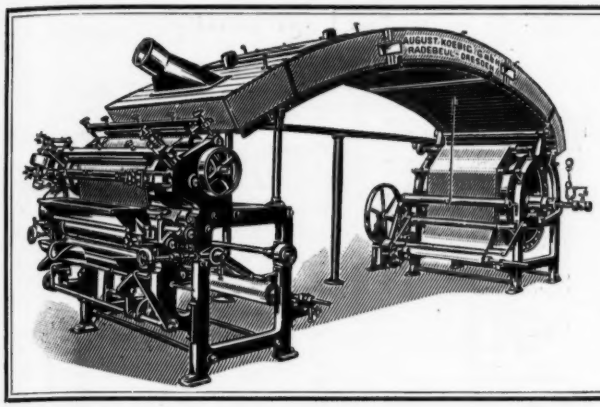
While jobber demand has not been hurt much by labor troubles in this state, the box and container men are beginning to worry lest some of the incipient labor difficulties develop into real storms and cause much loss of business right at a time when it would be much appreciated. In several of the larger box and container consuming businesses strikes already have caused some loss of business and the differences of opinion between labor and the factory owners have not been entirely settled. A straw to show which way the wind blows is the fact that one entire county in the western part of the state is under martial law because of coal mining troubles. This readily can spread to the entire coal field and business in that entire territory will be slowed down to a whisper.

Declines in paper stock prices have given members of the trade here a mild case of the jitters again. It was thought for a time prices had been stabilized to such a point that they might be maintained for a time. Mill demand fell off sharply and prices just naturally dropped some, from 10 to 18 per cent generally.

Millers Falls Paper Co. Report

MILLERS FALLS, Mass., October 17, 1933—The Millers Falls Paper Company has filed the following report of its financial conditions:

Assets—Cash, $32,042; accounts receivable from customers, $75,148; accounts receivable from others, $8,160; notes receivable from customers, $8,669; notes receivable from others, $32,545; merchandise, $140,033; supplies, $6,732; securities, $104,657; real estate, $517,036; machinery, $234,142; equipment and tools, $2,453; furniture and fixtures, $1,483; prepaid insurance, $9,368; treasury stock, $11,850; cash value life insurance, $5,350. Liabilities—Accounts payable, $16,214; taxes payable, $6,824; accrued labor, $2,341; capital stock, $1,050,000; surplus, $110,297.



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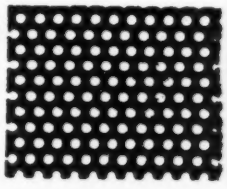

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FINEST PAPER CLAYS

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 18, 1933.

BLANC FIXE.—The position of the blanc fixe market continues unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton in bulk, while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. Shipments against contract are moving with regularity. Prices are holding to previously quoted levels. Bleaching powder is selling at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues quiet. Domestic standard ground is quoted at 14 cents and finely ground at 15 cents per pound. Argentine standard ground is selling at 14 cents and finely ground at 14½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Conditions in the caustic soda market are satisfactory. Prices remain unchanged. Solid caustic soda is quoted at from $2.55 to $3.00, while the flake and the ground are selling at from $2.95 to $3.00 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is fairly active. Shipments against contract are well up to average. Imported china clay is quoted at from $12 to $17 per ton, ship side, while domestic paper making clay is selling at from $4.50 to $12.00 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. Demand from the paper mills is persistent. Prices are holding to formerly quoted levels. Chlorine is selling at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. The grades of gum rosin used in the paper mills are now quoted at $5.05 per 280 pounds, in barrels, at works, while wood rosin is selling at $4.00 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Business in the salt cake market is fairly brisk. Prices are unchanged. Salt cake is quoted at from $14 to $14.50; chrome salt cake at from $13.50 to $14 per ton, at works; while imported salt cake is selling at from $14 to $14.50 per ton, on dock.

SODA ASH.—The soda ash market continues to display strength. The contract movement is well up to average. Prices remain unaltered. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: In bulk, $1.05; in bags, $1.30, and in barrels, $1.43.

STARCH.—Due to reduction of emergency freight charges, quotations in the starch market are slightly lower. The contract movement is seasonal. Special paper making starch is quoted at $2.67 per 100 pounds, in bags, and at $2.95 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is excellent. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.46; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton on any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the week was routine. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $20 to $50 per ton, ship side.

Market Quotations

Paper

(F. o. b. Mill)			
Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book Papers—			
S. & S. C.	5.50	@	—
S. & S. C. Litho.	5.75	@	—
M. F.	5.25	@	—
Coated and Enamel	6.15	@	9.30
Coated Litho	6.90	@	—
Tissues—Per Ream—			
White No. 1	.60	@	.80
White No. 2	.55	@	.70
Anti-Tarnish M. G. only	.75	@	.80
Colored	.80	@	1.00
Kraft	.75	@	.80
Manila	.65	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.11	@	—
No. 2	.10	@	—
Bleached, basis 20 lbs.	.13	@	—
(Delivered New York)			
News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Side Runs	25.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.62½	@	4.00
Southern	3.62½	@	4.00
Imported	Nominal		
Boards—per ton—			
News	45.00	@	50.00
Chip	42.50	@	47.50
Binders Boards	68.00	@	72.00
Kraft Liner	75.00	@	85.00
Standard 85 Test Jute Liner	50.00	@	55.00
Sgl. Mla. Ll. Chip	52.50	@	55.00
(F. o. b. Mill)			
Wood Pulp Board	70.00	@	80.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	27.50	@	29.00
Dry	28.00	@	29.50
(F.o.b. Mill)			
No. 1 Domestic and Canadian	24.00	@	28.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.70	@	3.00
Easy Bleaching	2.10	@	2.20
No. 1 strong unbleached	1.90	@	2.00
Mitscherlich Unbleached	1.95	@	2.05
No. 2 Strong unbleached	1.75	@	1.85
No. 1 Kraft	1.75	@	1.85
No. 2 Kraft	1.60	@	1.70
Sulphate—			
Bleached	2.75	@	3.25
(F. o. b. Pulp Mill)			
Sulphite (Domestic and Canadian)—			
Bleached	2.50	@	3.75
Easy Bleaching	1.90	@	2.05
News	1.85	@	1.95
Mitscherlich unbleached	2.25	@	2.50
Kraft (Domestic)	1.60	@	2.75
Soda Bleached	2.50	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.00
Silesias No. 1	4.25	@	4.50
New Unbleached	6.75	@	7.25
New Soft Blacks	3.00	@	3.25
Blue Overall	4.25	@	4.50
Fancy	2.50	@	2.75
Washables	2.00	@	2.25
Mixed Khaki Cuttings	3.25	@	3.50
O. D. Khaki Cuttings	4.00	@	4.25
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.75	@	4.00
Miscellaneous	3.00	@	3.50
White, No. 2—			
Repacked	2.00	@	2.50
Miscellaneous	1.75	@	2.00
Thirds and Blues—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	.90	@	.95
No. 2	.80	@	.85
No. 3	.75	@	.80
No. 4	.70	@	.75
No. 5A	.65	@	.70

Foreign Rags

New Rags

New Dark Cuttings	1.50	@	1.60
New Mixed Cuttings	1.60	@	1.70
New Light Silesias	3.50	@	3.75
Light Flannelettes	3.25	@	3.50
Unbleached Cuttings	5.75	@	6.00
New White Cuttings	5.50	@	6.00
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.00	@	7.50
No. 2 White Linens	6.00	@	6.50
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	3.75	@	4.00
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.50	@	1.60
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.65	@	1.80
French Blue Linens	2.10	@	2.25
German Blue Linens	1.85	@	2.00
German Blue Cottons	1.35	@	1.50
Checks and Blues	1.30	@	1.40
Lindsay Garments	1.10	@	1.15
Dark Cottons	1.00	@	1.10
Old Shopperies	.85	@	.90
New Shopperies	.80	@	.85
French Blues	1.50	@	1.65

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.30	@	1.40
Domestic	1.25	@	1.35
Wool Tares, light	1.05	@	1.15
Wool Tares, heavy	1.05	@	1.15
Bright Bagging	1.00	@	1.10
Manila Rope—			
Foreign	2.50	@	2.75
Domestic	2.50	@	2.75
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	1.50	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.60	@	2.75
Ordinary Hard White No. 1	2.30	@	2.50
Hard White No. 2	2.20	@	2.30
Soft White No. 1	2.15	@	2.25
Flat Stock-			
Stitchless	1.05	@	1.10
Overissue Mag	1.05	@	1.10
Solid Flat Book	1.00	@	1.05
Crumpled No 1	.85	@	.90
Solid Book Ledger	1.50	@	1.75
Ledger Stock	1.05	@	1.15
New B. B. Chips	.50	@	.60
Manilas—			
New Env. Cut	1.65	@	1.75
New Cuttings	1.20	@	1.25
Extra No. 1 old	.90	@	1.00
Print	Nominal		
Bogus Wrapper	.70	@	.80
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.15	@	1.25
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.70	@	.75
Strictly Folded	.65	@	.70
No. 1 Mixed Paper	.40	@	.45

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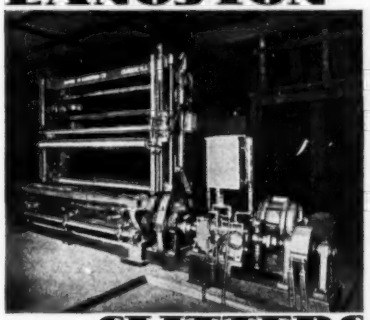
LANGSTON



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The heavy-duty Langston Slitter can be had in any width, to wind any diameter. Use it as a winder or as a rewinder. Speed up to 3000 feet per minute. Makes rolls of uniform density, square-edged. Langston's Shear-Cut makes no dust—the paper is *clean-cut*, not ground apart. A catalog is yours for the asking.

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Twines
(F. o. b. Mill)

Cotton—			
B. C. 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Flaxed Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.15	@	.16
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.13¾	@	.14¾
3-ply	.14¾	@	.14¾
2-ply	.15¾	@	.15¾
Paper Makers Twine	.08¾	@	.10¾
Box Twine, 2-3 ply	.12¾	@	.13½
White Hemp	.12¾	@	.15¾
Java Sisal—			
No. 1 Basis	.11½	@	—
No. 2 Basis	.10½	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.13½	@	.15½
No. 2	.11½	@	.13½
Manila Twine	.24½	@	.29½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¼	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¼
Butcher's Manila	.03¼	@	.03¼
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	—
Solid News	43.50	@	—
Manila Lined Chip	47.50	@	—
Patent coated	55.00	@	—
Container Lined—			
85 Test	60.00	@	65.00
100 Test	60.00	@	70.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	1.80
No. 1 Hard White	1.40	@	1.50
No. 1 Soft White	1.20	@	1.30
Ledger & Writings	.80	@	.90
Solid Books	.80	@	.90
Blanks	1.00	@	1.05
Krafts	.90	@	1.00
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	1.00	@	1.05
Print Manila	.60	@	.65
Overissue News	.60	@	.70
Old Newspapers—			
No. 1	.55	@	.65
Mixed Papers—			
No. 1	.50	@	.55
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.10
Manila Sul., No. 1	.03	@	.06
Manila No. 2	.03	@	.05
No. 1 Kraft	.05¼	@	.06½
No. 2 Kraft	.03¾	@	.05
Southern Kraft	2.75	@	4.00
Common Bogus	.03	@	.04½

(Delivered Philadelphia)

News Print Rolls	46.00	@	55.00
Straw Board	40.00	@	45.00
News Board	37.00	@	45.00
Chip Board	40.00	@	45.00
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02¼	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.15
No. 1 Soft White	2.15	@	2.20
No. 2 Soft White	1.15	@	1.25
No. 1 Mixed	.95	@	1.00
No. 2 Mixed	.75	@	.80
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.15	@	1.20
No. 1 Books, heavy	1.00	@	1.10
No. 2 Books, light	.75	@	.85
No. 1 New Manila	1.20	@	1.50
No. 1 Old Manila	.95	@	1.00
Print Manila	.85	@	.90
Container Manila	.80	@	.85
Old Kraft	.90	@	1.05
Common Paper	.40	@	.45
No. 1 Mixed Paper	.50	@	.55
Straw Board Chip	.50	@	.55
Binders Board Chip	.50	@	.55
Corrugated Board	.75	@	.80
Overissue News	.65	@	.70
Old Newspapers	.60	@	.65

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	—
No. 2 Kraft	.03½	@	—

(F. o. b. Boston)

Southern Kraft	.03¾	@	—

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¼

(Delivered New England points)

News Print, rolls	44.50	@	—
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	45.00	@	50.00
Chip Board	42.50	@	47.00
Chip Board (Creasing)	45.00	@	—
Single Manila Lined Chip	52.50	@	62.50
Single White, Patent Coated News Board—			
Bender	62.50	@	72.50
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	—	@	2.50
No. 1 Soft White	—	@	2.25
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.40	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	1.00	@	1.10
No. 1 Books, heavy	1.10	@	1.20
No. 1 Books, light	.80	@	1.00
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.95	@	1.05
White Blank News	1.15	@	1.25
No. 1 Kraft	1.10	@	1.15
Manila	.90	@	1.05
No. 1 Mixed Papers	.32½	@	.35
Print Manila	.55	@	.65
Overissue News	.65	@	.80
Old Newspapers	.55	@	.60
Box Board Chips	.32½	@	.35
Corrugated Boxes	.37½	@	.42½
Screening Wrappers	.60	@	.70

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	—	@	2.25
Domestic	—	@	2.50
Transmission Rope	1.50	@	—
Mixed Strings	.65	@	.75
Jute Rope	1.00	@	1.15
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.25	@	1.30
Domestic	—	@	1.00
Bleachery Burlap	3.00	@	3.25
Scrap Burlap	—	@	1.00
No. 1 Scrap Burlap	1.20	@	1.25
Scrap Sisal	1.10	@	1.15
Scrap Sisal for shredding	1.15	@	1.30
Wool Tares, heavy	1.15	@	1.25
New Burlap Cuttings	1.15	@	1.25
Australian Wool Pouches	2.50	@	—
Heavy Baling Bagging	1.60	@	1.85
Paper Mill Bagging	.85	@	.95
Bagging No. 2	.50	@	.60
No. 1 Burlap	1.75	@	2.25

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.02	@	.02¼
New White No. 1	.05½	@	.06
New White No. 2	.04½	@	.05
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	—	@	.05¾
Blue Cheviot	—	@	4.65
Fancy	—	@	.03¼
Washable	.02¼	@	—
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03¼
O. D. Khaki	.03	@	.03¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	.05	@	.05½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	—
White No. 2—			
Repacked	.01½	@	.01¾
Miscellaneous	.01½	@	.01¾
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	1.10	@	1.25
Miscellaneous	.85	@	.90
Black Stockings	2.25	@	2.50
Roofing Stock—			
No. 1	.65	@	.70
No. 2	.50	@	.55
No. 3	.35	@	.45

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	.80
New White Shirt Cuttings	5.50	@	6.50
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	—	@	1.10

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.09¾	@	—
No. 2 Sulphite	.08	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.08½	@	.10¼
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	@	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

Bagging
(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.10
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.50
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.55	@	.80
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	1.00	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.70	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.05¼	@	.05¾
Fancy Shirt Cuttings	.02¼	@	.03¼